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The Railway and Locomotive Historical Society

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THE RAILWAY AND LOCOMOTIVE HISTORICAL SOCIETY

APRIL, 1958

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The majority of us cannot help the environs into which we were born but, your Editor has always felt that those boys that were "born and raised" in a railroad town or railroad junction had the advantage of those youngsters born in the larger cities, so far as railroad matters were concerned. Sooner or later we selected one engineer as our "hero" and one locomotive as our favorite and, after that, all comparisons were made between them. As our sphere extended with maturity we came to know the railroad men and their families and the officials of the road and then our knowledge increased. It was in such an atmosphere that our member Dr. Aurele A. Durocher was born and he has recounted for us and recounted so well his story of the Lake Superior & Ishpeming R. R., told it as one that had a genuine affection for the men and locomotives of that road as many of us had when we were younger. We welcome Dr. Durocher to our columns.

We welcome the papers submitted by "Ray" Hicks on the Emmitsburg and Monocacy Valley—two small railroads that acted as feeders

to the Western Maryland R. R. in Maryland; Paul Warner has listed and described some interesting locomotive patents, some of which influenced locomotive design and others were in the "should have known better" class but, interesting all the same; Sidney Withington has presented an interesting account of the stock manipulation of Robert Schuyler on the New York & New Haven R. R. and Harold Walker has produced an interesting account of the Whitneyville & Machiasport R. R. and its two early locomotives. Two brief papers by the late A. W. Newton are included and your Editor has furnished a brief account of the Hocking Valley R. R. and its locomotives. All of these we hope will be found of interest to our membership to start our first publication for the coming year.

The Lake Superior and Ishpeming Railroad Company

By Aurele A. Durocher

When first built in 1896, the Lake Superior and Ishpeming Railway was known to people as "Hayden's Scheme" (after George W. Hayden, one of the railroad's promoters); to others it was known as the "Little Sally and Imogene Railway" (after the names of two daughters of H. R. Harris, the railroad's first general manager); later it became known more irreverently as the "Lazy, Slow, and Independent" (its mixed trains were notoriously slow because of heavy trains, some steep grades, and sharp curves, and long hours were spent switching at terminals and junction points); some, like an old Norwegian section boss on the Chicago and Northwestern System that I knew long ago, called it "The Hook and Eye" (for reasons unknown, except possibly for the resemblance of the "I" sounds in both names). By whatever names it has been known, the railroad is one of the most interesting in the United States, especially because of its motive power, which often came from different railroads, fixed up to a sort of "family resemblance," and put out on the road or in switching service to do their stint. Its economic importance to the Upper Peninsula of Michigan is furthermore unquestioned, and it performs a vital service in transporting most of the iron ore of the Marquette Range to the ore dock at Marquette, thence to be carried by lake ships to the steel and industrial areas of the Great Lakes region. How did this railroad become such an indispensable link? That is the story which follows.

LAKE SUPERIOR AND ISHPEMING RAILWAY COMPANY 1896-1924

The present railroad is really a combination of three smaller railroads, each built separately and for different purposes: the Lake Superior and Ishpeming Railway, built in 1895 and 1896, the Munising Railway, built at the same time, and the Marquette and Southeastern Railway, built in 1901 and 1902. But the area now traversed by the L. S. & I. was long before the 1890's viewed as an ideal route, circumstances of terrain considered, from the mines to the ore docks at Marquette on Lake Superior.

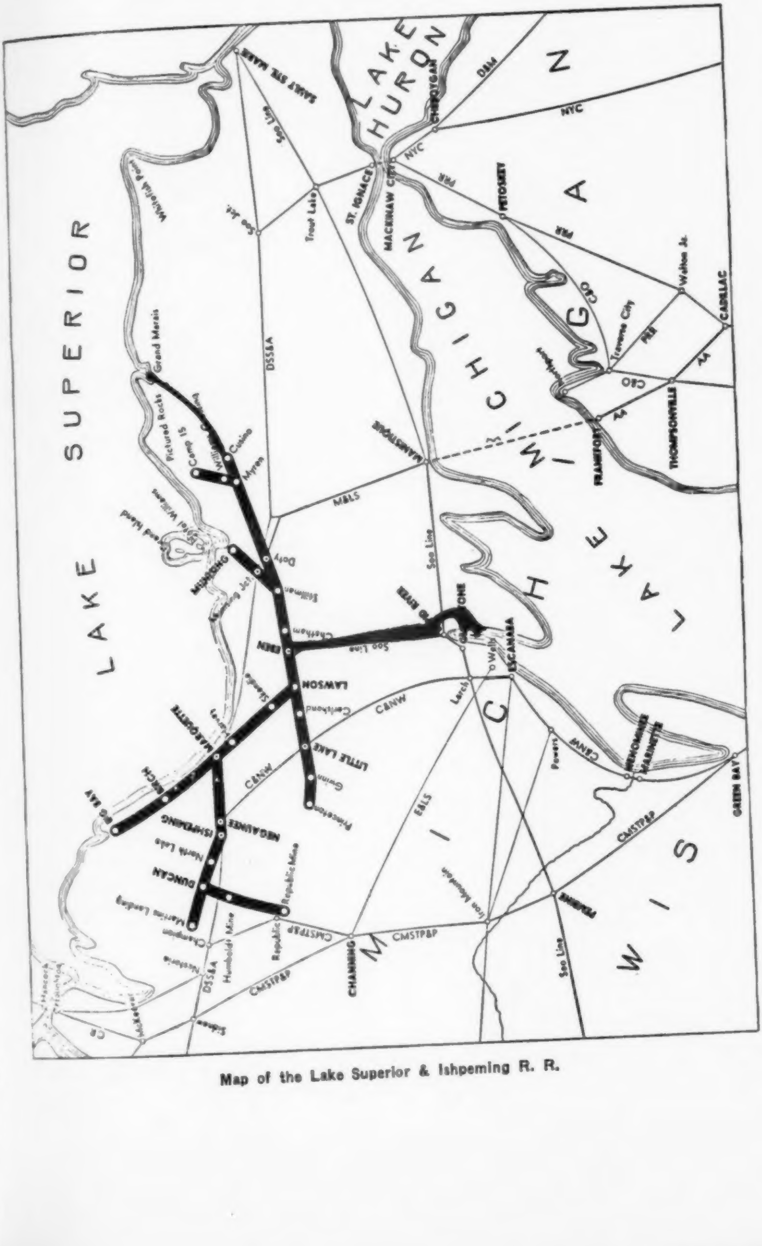
After the discovery in 1844 of iron ore near the present city of Negaunee, Michigan, twelve miles west of Marquette and three miles east of Ishpeming, a sister ore town, the immediate problem of transporting the iron ore to Marquette proved a vexing one. The topography in and around Marquette is very rough, indeed, for railroads, especially in the early days when tiny locomotives could not pull much of a heavy load, like iron or copper ore. Most of the distance from the mines to Marquette was down grade, but there was the problem of hauling enough empty cars back up to the mines to make a railroad a profitable venture. Nevertheless, railroads were built in the region, beginning in

1855 with a small plank railroad supporting four-ton ore cars hauled by mules, and running from Negaunee to Marquette. The first actual railroad with steam locomotives was built in 1857; others followed, known by such names as the Marquette and Ontonagon Railway, Marquette and Western Railway, and others (consolidated with several other small railroads in 1887 into the present Duluth, South Shore, and Atlantic Railroad, familiarly known in this region as the "South Shore"). Iron ore, of course, was the number-one economic commodity in the district, and there was continuous search for the routes having the least gradient into Marquette and stopping at a place where the best natural harbor for lake boats was located.

Fortunately there were several excellent harbors in and near Marquette. In 1857, the harbor about two miles from the present business section of this city was viewed as a proper starting point for a railroad to be built from that point to Ontonagon, Michigan, via L'Anse, important timber towns west of Marquette. This railroad, to be known as the Marquette and Ontonagon Railway, was to be constructed from this natural harbor in the Partridge Island vicinity, about a mile north of the city limits, and proceed about a mile southward and then westward to Negaunee and Ishpeming, approximately along the present route of the L. S. & I. in the same area. The federal government had given a land grant, one A. W. Wildes of Boston had prepared an engineering report canvassing the commercial aspects of the project, and promoters had set an estimated cost for a 125-mile railroad of $1,957,230. However, for some reason the railroad was never built, franchise and land grant being turned over in 1863 to another small railroad then building, the Marquette and Ontonagon Railroad. This is the first instance in recorded railroad history of the Upper Peninsula of a railroad projected in an area now traversed by the L. S. & I.

The attractiveness of the area continued to beckon, however, and other overtures were subsequently made to take advantage of the relatively easy grade coming into the region, contrasted with the very heavy grades on the railroads coming into Marquette farther south, and of the excellence of the harbors nearby, such as at Presque Isle and Middle Island Point. In 1869 one D. H. Merritt took soundings of Presque Isle Bay for the Chicago and Northwestern Railroad, which had already taken over the Peninsula Railway built in 1864 to haul ore from Negaunee to Escanaba, Michigan, a Lake Michigan port some seventy miles south of Marquette. Merritt's report rejected the harbor because of his mistaken notion that the water was not deep enough to serve lake vessels. Again, in 1890 another survey of the Presque Isle area was instituted by an organization known as the Marquette, Champion, and Chicago Railway. The conclusion reached was that there was ample room in the area for a lumber mill and an iron ore dock (using the harbor and the mouth of a small river, the Dead River, for focal points). But nothing further was heard on this project.

Finally, early in the 1890's, rumors began to be heard about a railroad to be built from the Presque Isle harbor to Negaunee and Ishpeming "to beat the South Shore and Northwestern" (C. & N. W.) "out of



Map of the Lake Superior & Ishpeming R. R.

their ore business" (said the projected railroad's enemies). The rumors proved sound, for in 1892 a survey of the projected route was made by one A. J. Wenzell for the organization, to be known as the Lake Superior and Ishpeming Railway. The railroad company was formed in February, 1893, and a hope was expressed that a blast furnace and rolling mill would also be built in or near the Presque Isle area. There was, as was to be expected, hostility from the other railroads; and certain private persons with extensive land holdings in and near Marquette tried to arouse interest in building rival railroad companies, such as in the Middle Island area and in the southern part of the city, but such projects remained in the discussion stage. The L. S. & I. went ahead with its plans.

The railroad was actually built by the Cleveland-Cliffs Iron Company (familiarly known in the Upper Peninsula as the "C. C. I.") and the Pittsburgh and Lake Angeline Iron Company. Construction began December 1, 1895; the main line was to run a distance of 19.94 miles westward from Presque Isle to Ishpeming. The directors of the new railroad were William G. Mather, Cleveland, Ohio, president; James Laughlin, Jr., Pittsburgh, Pennsylvania, vice-president; W. G. Pollock, Cleveland, treasurer; James H. Hoyt, Cleveland, secretary; and B. F. Jones, Jr., Pittsburgh; J. H. Wade, New York City; and George Hayden, Ishpeming, Michigan, other directors. General manager was H. R. Harris, and engineer of maintenance of way, J. F. Deimling, both of Marquette. Throughout the winter and next spring the air and woods rang with sound of axe and saw, shoutings of men at their different tasks of building a right of way, and there was the usual hustle of promoters anxious to see the important project completed. By summer of 1896, the company was building, in Presque Isle harbor, a wooden ore dock, to be 1200 feet long, 54 feet high, 49 feet wide with four tracks on the top, and having 200 ore pockets of 150 tons capacity each and a total storage capacity of 36,000 tons. A merchandise dock half as long was also being built just north of the ore dock to receive equipment from lake vessels for the railroad, and the federal government was constructing a 1200 feet long breakwater nearby, to protect ore vessels loading at the docks. The Lake Superior and Ishpeming Railway was underway!

Work proceeded rapidly, considering the difficulty of construction in such rocky and hilly terrain, not the least of which was the spanning of the Dead River by a steel bridge 135 feet above the water and about seven miles west of Presque Isle. On August 12, 1896, it was decided to run a test ore train over the line, even though the main line extension to Ishpeming and the necessary 3.99 miles of branches into various iron mines in the area had not been completed. The railroad entered into arrangements with the Chicago and Northwestern, the latter railroad to load the cars of the smaller railroad and haul them to the main line already completed. Accordingly, on August 12 a test train was run from Negaunee to Presque Isle with engine No. 9 (an 0-6-0 built in 1896 by the Pittsburgh Locomotive Works) and 40 wooden iron ore hoppers of 30-ton capacity but only half loaded for safety's sake. An engine with two cars had earlier made a test run up onto the wooden ore dock

at Presque Isle. The ruling grade down from Negaunee into Presque Isle was 1.63%, and apparently the test run was a success, for regular trains of one engine and 30 cars began puffing up and down to the ore yards near the mines and back. During this first season, only somewhat less than half the time of a regular season, 290,813 tons of iron ore were shipped; in 1897, the first complete year of shipping, 1,035,783 tons were shipped.

The L. S. & I. had, at its inception, 11 steam locomotives (to be described more completely later), 400 wooden ore hoppers of 30-ton capacity, 24 miscellaneous cars, and the other paraphernalia of a small railroad with a single commodity to haul. Since 1896, the record is one of continuous expansion and improvement. Connections were made with the small Munising Railway in 1902, more spurs to ore mines were built in Negaunee and Ishpeming, heavier rail was laid, and an extension into the North Lake District was made (iron ore region four miles west of Ishpeming) in 1910. In 1898, with the purchase of two coaches from the Pullman Company, passenger excursion service was inaugurated between Ishpeming and Presque Isle, patrons from Marquette making the connection with the line's depot by taking the street car line from the city to the station. In the same year, the L. S. & I. bought its first all-steel iron ore hoppers to be used in ore service; they were of 50-ton capacity (later reduced to 40 tons). The railroad purchased additional locomotives as early as 1897; others were added in 1902, 1905, 1906, 1907, 1910, 1916, and 1919. The iron ore shipped in 1896, 290,813 tons, increased steadily in amount to a figure just under three million tons in 1924, thus justifying the boldest dreams of the railroad's promoters. In 1911 and 1912 the road constructed the first all-steel and concrete ore dock in the world, the wooden dock no longer being able to take care of ore shipping demands. The steel dock was built to a length of 1200 feet, a height of 75 feet, a width of 54 feet with four tracks on its top, and had 200 ore pockets of 200-tons capacity each and a total capacity of 50,000 tons. Annual shipping capacity was to be 3,000,000 tons a year (a figure which has since 1924 been far exceeded in certain years). The approach to the dock consisted of a sand fill of about a mile in length with a grade of 1.5%, and containing 600,000 cubic yards of earth; and a four-track steel trestle 600 feet in length. In 1919 and 1922 there were constructed an excellently equipped round house, storehouse, shops, and other miscellaneous buildings surrounded by well kept lawns and beds of flowers of many different species—thus showing that beauty and technology need not be divorced in our industrial age. All these buildings and facilities were, of course, improvements over the earlier buildings.

LOCOMOTIVES

When the L. S. & I. first began operations in 1896, it had 11 steam locomotives of two basic types. All these engines were purchased from the Pittsburgh Locomotive Works. The fact that one of the builders of the L. S. & I. was the Pittsburgh and Lake Angeline Iron Company leads one to believe that that company was able to persuade the management

to purchase their motive power from a works in Pittsburgh. Numbers 1 through 4 were cross-compounds, 2-8-0 in type, with cylinder dimensions of 20″ x 31″ x 28″, tractive effort of 27,184 pounds, engine weight of 148,000 pounds, and cost $11,380.94 apiece. These engines were used for the main business of the road, hauling empty iron ore hoppers up the eight-mile hill out of West Yard (the classification ore yard) and on to Negaunee and Ishpeming and hauling loads back. I never saw these locomotives when they were compounds (all were converted to simple in 1910), but oldtimers have told me that they were excellent engines for their size and purpose. Soon in their career, however, they were considered too light for the work they had to do; consequently, before 1910 it was decided to sell them after they had been made simple. But in the meantime the Marquette and Southeastern Railway doubtless needed relatively heavy power for its short line to Lawson (it's junction point with the Munising Railway), for it purchased three of these engines, numbers 1, 2, and 4, in 1905 for $7,000 apiece. Number 3 stayed on the L. S. & I., being renumbered No. 12 in 1906 and No. 17 in 1909, when other engines purchased after 1896 needed its numbers. Though the intention was to sell it, especially after 1910, when it had been made simple with 20″ x 28″ cylinders and a tractive effort of 30,600 pounds, it never was, for the price asked for it was no doubt too high. The AFE (the railroad's "authorization for expenditure" form) on it, when it was decided to sell it, stated that it would be sold "if the price asked is received." In 1924, as number 17, it was still on the roster and in service doing well the work assigned to it, that of working around the ore mines and occasionally pinch-hitting on a mixed train.

Numbers 5 and 6 were simple 2-8-0 engines having about the same appearance as that of numbers 1 through 4, cylinder dimensions of 20″ x 26″, tractive effort of 31,820 pounds, and an engine weight of 142,000 pounds. The duty of these plucky little locomotives (the reputation of number 6 as a very good steamer and an engine possessing excellent adhesive qualities being noted among railroad men), was to push ore up onto the dock at Presque Isle. However, they must not have been needed too badly, for in 1898 and 1899, they were rented to the Grand Rapids and Indiana Railway for a period of about fifteen months. Number 5 was renumbered No. 7 and number 6 renumbered No. 8 in 1909, when other engines soon to be purchased were to oust other locomotives to be given these numbers.

Numbers 7 through 11 were small 0-6-0's intended and used for switching duties and railroad construction work. Their tiny drivers of 44 inches, cylinder dimensions of 19″ x 24″, and engine weight of 107,000 pounds—all on the drivers—made them for their day admirable for the duties expected of them. It was one of these engines, number 9, that had the distinction of hauling the first ore train down from Negaunee to West Yard. I recall when a small boy (in the 1920's) seeing two of these little engines working in the yard of a local chemical plant (originally the furnace built in Marquette in 1901 and 1902). Though little, they were able to scoot around that yard with amazing despatch and kept their heads above water, so to speak, every minute

of the day. Evidently, all of these Pittsburgh engines paid for themselves many times over. All these 0-6-0's were soon renumbered: number 7 becoming No. 2; number 8, No. 3; number 9, No. 4; number 10, No. 5, and number 11, No. 6 in 1909, as other engines were given their numbers. In 1919 and 1920, respectively, number 10 (then No. 5) and number 11 (then No. 6) were sold to the Cleveland-Cliffs Iron Company, Furnace Department. These were the engines that I doubtless saw back in the twenties and thirties, switching in the chemical plant yard.

The big increase in the shipment of iron ore in 1897 over 1896 (1,035,783 tons contrasted to 290,813 tons) undoubtedly necessitated the purchase of more little engines to release those needed for heavier work, for in 1897 three small 0-4-0 switchers were bought from the J. I. Gardner Company of Chicago, engines once owned by the Erie Railroad as their numbers 28, 30, and 32. They were assigned to spotting ore cars for steam shovels in the mines in Ishpeming and Negaunee. They were given numbers 12, 13, and 14, and were supposedly renumbered second No. 2, No. 3, and No. 4 in 1906. Technical data on these engines is very meager, and the few older engineers still living merely remember them as being very small. They probably had cylinder dimensions of 17″ x 24″ and a tractive force of 13,672 pounds. It is also known that they were built by Pittsburgh Locomotive Works, which fact speaks well for the excellence of the engines first purchased in the railroad's opinion. That they were quite old seems clear, for already in 1902 they were declared unfit to be put into first-class shape. According to Mr. W. A. Zerbel, assistant to the president of the present L. S. & I. and a veteran railroad official, these engines were sold to the Hicks Locomotive and Car Works as part payment for three similar locomotives numbered also 12, 13, and 14, in 1902. If so, original numbers 12, 13, and 14 may not have been renumbered, and second No. 12, 13, and 14 were renumbered in 1906, and technical data referred to above may be those of the Hicks locomotives. At any rate, first or second number 12 (then No. 2) was sold in 1909 to the Lake Independence Lumber Company, whose headquarters were in Big Bay, Michigan, a small lumber town on Lake Superior twenty-four miles northwest of Marquette and situated in a heavily timbered area. Mr. Zerbel also states that first or second number 13 and 14 (then No. 3 and No. 4) were sold in 1916 to the Cleveland-Cliffs Iron Company and the Charcoal Iron Company of America, respectively.

In 1905, two of the three engines authorized for purchase in 1902 arrived in Marquette, and in 1906 the third arrived. The former two came from the Baldwin Locomotive Works, were numbered 15 and 16, and for the time were the heaviest and most powerful rod locomotives in the Upper Peninsula of Michigan. Both were medium Consolidations, had cylinder dimensions of 22″ x 30″, a tractive effort of 43,304 pounds, boiler pressure of 200 pounds, cost $14,697 apiece, and the engine weight was 198,000 pounds. The engine which came in 1906, numbered No. 14, was manufactured by the American Locomotive Company, Pittsburgh Works, and had practically the same dimensions and data as numbers 15 and 16, except that it had a different appearance and cost $15,800. It

was these three engines that bore the brunt of ore hauling. As my father, who was a conductor on the L. S. & I. for many years, put it: "Day in and day out, from 1905 and 6 to 1916, these locomotives pounded up the hill to Negaunee and Ishpeming, and brought back their capacity of ore cars, which was 45 cars. They were wonderful engines!" On June 2, 1916, number 14 figured in a wash-out wreck while coming down from Negaunee with a train of ore. The engine and several ore cars rolled down a steep embankment, and it took a month, I am told, to get it back "on its pins" again. Curiously enough, my father was the last conductor to run over this same spot with an ore train and engine No. 16; he said, "It was sure raining cats and dogs!"

Also in 1906 Lima Locomotive Works delivered a Shay locomotive to the L. S. & I. It became second number 1, and was a very powerful locomotive, having a tractive effort of 62,500 pounds. It had three cylinders on its right side, 17″ x 18″ in size, and was used for pushing heavy trains of ore cars onto the dock. I never saw this engine, but engineers and firemen have told me that, though it was incredibly slow with its 46″ drivers, it was able to push twice the number of hoppers onto the dock that the engines used before its purchase could. A picture of it shows it to have been an ungainly looking creature, having a squat, low boiler and two tenders, one for coal and one for water. When pushing cars up the dock, I have heard, it sounded as if it were going "forty miles an hour," whereas it was only crawling. Nevertheless, it was used right up to 1924, the year of consolidation of the three railroads which are the subject of this brief history.

By 1909 the railroad needed some new engines to replace four others intended to be sold. Accordingly, in 1910, five new locomotives arrived from Alco-Pittsburgh, numbered second 9 through 13. These engines had 20″ x 28″ cylinders and 34,000 pounds of tractive force; engine weight was 174,500 pounds, and they cost $14,335 each. One feature peculiar to each, for that day, was that they were the first engines on the L. S. & I. to have outside valve gear and an eccentric rod, the gear arrangement called the Pilliod gear. Consequently, their gear motion seemed like a set of counter gyrations to railroad men, and the engines were called "monkey motions," a name which has stuck to them. Their fire boxes were also narrow, being contained between the back set of drivers; therefore, the engines were not good steamers. As a result, they were not always able to do the work assigned them, given their technical construction and tractive effort, and they had the bad habit of stalling on hills, or giving up when the going became heavy. Railroad men, therefore, flung many curses at them. Only numbers 9 and 10 performed fairly efficiently. A story goes that number 9, one day many years ago, lost a back-to-back struggle (pulling in an opposite direction to another engine) with second number 8, an 1896 Pittsburgh loco. The narrator of this story said, "Number 9 puffed, snorted, spun its drivers, raised a horrible fuss, but slowly and gradually the Eight-spot pulled the protesting Nine-spot until it was all over." And, in backing, these engines had a bad tendency to climb the rails, until hot water ejectors were installed back of the last set of drivers. Nevertheless, these engines

were the backbone of the railroad's mixed train business, and could pinch-hit for an ore train as well when necessary. They are intertwined in my own affections since I was a small boy, for they nearly always pulled my father's train on a mixed run. I rode on one of these engines (Munising, Marquette, and Southeastern Railway number 40—identical to L. S. & I. numbers 9-13) before I ever rode in an automobile, back in 1920, after a wreck made it impossible for coach passengers to ride in the cars to their destinations. I shall never forget the impression No. 40 made on a six-year-old boy, as I stood next to the fireman, the boiler looming above me, the paraphernalia on the back head looking very formidable, and the whole engine rocking and swaying throughout the night. Their bells were not much to listen to, except those of numbers 12 and 13 and identical M. M. & S. E. number 38, but their whistles were very pleasant to listen to on cold winter nights, with a wail and unusual "rising inflection" at the end of a long pull on the whistle cord as the engine approached a station or sped in between the many hills on the line.

As the years passed, and the ore business kept increasing, particularly just before World War I, the road still felt the necessity of purchasing new engines. In 1916, therefore, three of the biggest and most powerful locomotives in northern Michigan were bought from Baldwin. Heavy Consolidations, they were numbered 18 through 20, had cylinder dimensions of 26″ x 30″, an engine weight of 270,000 pounds, and a tractive effort of 55,900 pounds. Because of their 88″ diameter boiler, the low, broad, and squat domes, and the fact that their bells had to be mounted aside from the top of the boiler, they were called "hogs," an epithet which they still have. Though not very fast, they could pull the longest string of hoppers up to Negaunee that any L. S. & I. engine had ever done before—60 cars. They replaced numbers 14, 15, and 16 on the hill to the ore range; and, like the latter engines, "worked day in and day out" hauling their strings of cars. I recall their exhaust as being heavy and "boomy"; they even sounded powerful when moving.

Only two more engines were bought between 1916 and 1924, at the time of consolidation; this time, they were light Mikados purchased in 1919 from the Duluth and Northern Minnesota Railway, after that railroad had ceased operations. Numbered on the L. S. & I. 21 and 22, they had cylinders of 20″ x 28″ dimensions, a tractive effort of 35,224 pounds, drivers of 44″, and weighed 178,000 pounds. Though rather slow and lumbering, these engines could pull "like all get-out," so railroad men remarked, and they proved their value around the ore mines or when pinch-hitting on log drags when necessary, the purpose for which they were originally built for the D. & N. M. The sound of their bells was not pleasant upon the ear, and their whistles were strident enough to make one jump. Nevertheless, they did their work efficiently, and there was no nonsense about stalling when the going became rough.

By 1924, when the L. S. & I. consolidated with the Munising, Marquette, and Southeastern Railway, the railroad had a new steel and concrete ore dock, new round house and shops beautifully landscaped, and twenty steam locomotives. It was also shipping between two and three

million tons of iron ore a year, had several mixed trains hauling passengers, baggage, mail, express, logs, and every conceivable type of merchandise, kept its motive power and rolling stock in number-one shape, and was looking to the future.

THE MUNISING RAILWAY COMPANY 1896-1911

While the Lake Superior and Ishpeming Rail*way* was being built, another small railroad, destined to become a part of the present Lake Superior and Ishpeming Rail*road*, was pushing its way from the town site of Munising, Michigan, forty-five miles east of Marquette by rail, into the timber country surrounding. This small railroad was known as the Munising Railway, its purpose for existence being to tap the virgin pine, hemlock, and other hardwoods in this area, to make connections with the Duluth, South Shore, and Atlantic Railroad which ran near Munising, and with the Chicago and Northwestern Railroad some thirty-eight miles away to the southwest. It was originally intended to build the railroad to a point on Little Bay de Noc, on Lake Michigan, but the line never got farther than Princeton, Michigan, a village forty-five miles south and west of Munising.

The railroad company was organized on July 3, 1895, by the Munising Company and Lac LaBelle Company, two land companies, with one Timothy Nester as chief promoter, and certain capitalists from Cleveland, Ohio, and the state of Indiana, willing to finance such a project. Actual construction began August, 1895, and the small road was finished in December, 1896. Thirty-eight miles of main line had been laid, with connections with the D. S. S. & A. at Munising Junction, five miles from Munising, and with the C. & N. W. at Little Lake, Michigan, a tiny mill town at the end of the line. Also, a branch seven miles long was built into the forest about ten miles from Munising. Not many months after the L. S. & I. was hauling ore down from Negaunee and Ishpeming, then, the Munising Railway, with its tiny locomotives and small trains, was hauling lumber to the mills at Munising.

The little railroad had operated only four years when, in 1900, the Cleveland-Cliffs Iron Company, which with the Lake Angeline and Pittsburgh Iron Company had built the L. S. & I., obtained control of the Munising Railway by purchase of the timber holdings of the two land companies which had built the Munising Railway. The directors of this little road became substantially the same as those for the L. S. & I., the previous president, Dan P. Eels, having served as first president of the little road, and Fayette Brown, called the "iron man," as vice-president. No doubt, at this time, the C. C. I. contemplated building a connection between its L. S. & I. and the Munising Railway to be able to transport the necessary timber for its iron mines on the Marquette Range from the area traversed by the latter railroad and to service the blast furnace projected at Marquette near the lines of the L. S. & I.

Subsequent developments on the Munising Railway saw the construction of more main line and branches. The main line was pushed into the Gwinn and Princeton, Michigan, area, respectively forty-three

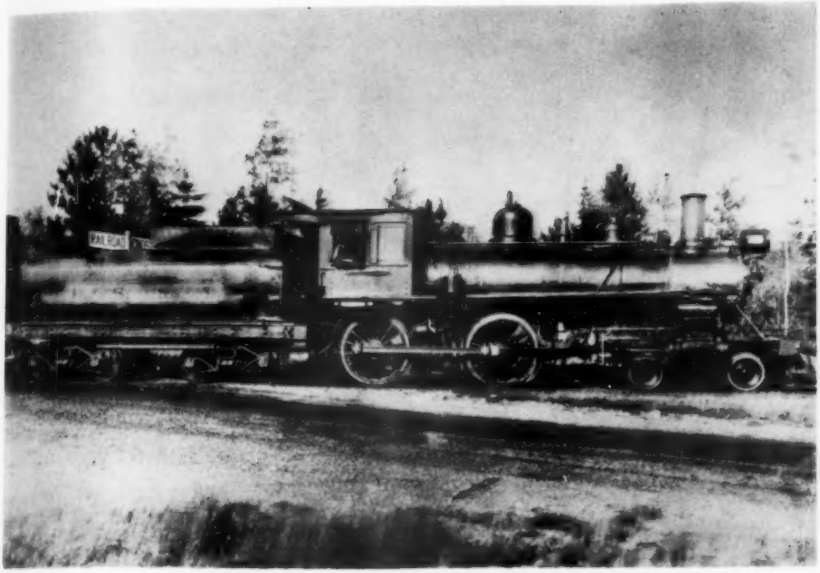
miles and forty-five miles from Munising. This region had in it several iron ore mines, which the C. C. I. had begun to operate. This addition to the railroad was accomplished in 1903 and 1905. A branch, called the "East Branch," was constructed out of Stillman (nine miles from Munising) twenty miles into the timber country to a place called Doty, where there was established a connection with the Manistique and Lake Superior Railway Company, a subsidiary of the Ann Arbor Railroad. This was accomplished by 1905; by the next year the branch had been extended twelve more miles to a locality called Cusino. Finally, no doubt because of the ease of consolidating the operations of the Munising Railway and the Marquette and Southeastern Railway, built by the C. C. I. in 1901 and 1902, these two railroads were combined into the Munising, Marquette, and Southeastern Railway in 1911. At that time, the two railroads had enough locomotives and cars to take care of the business of both roads, and in conjunction with the wealthy L. S. & I., to carry on a lucrative business. For all practical purposes, though the names of the railroads differed (L. S. & I. and M. M. & S. E.), and separate reports were made to the Interstate Commerce Commission, the two railroads operated virtually as a unit, a fact which was legally recognized in 1924 with the consolidation of the two railroads into the present Lake Superior and Ishpeming Railroad Company.

LOCOMOTIVES

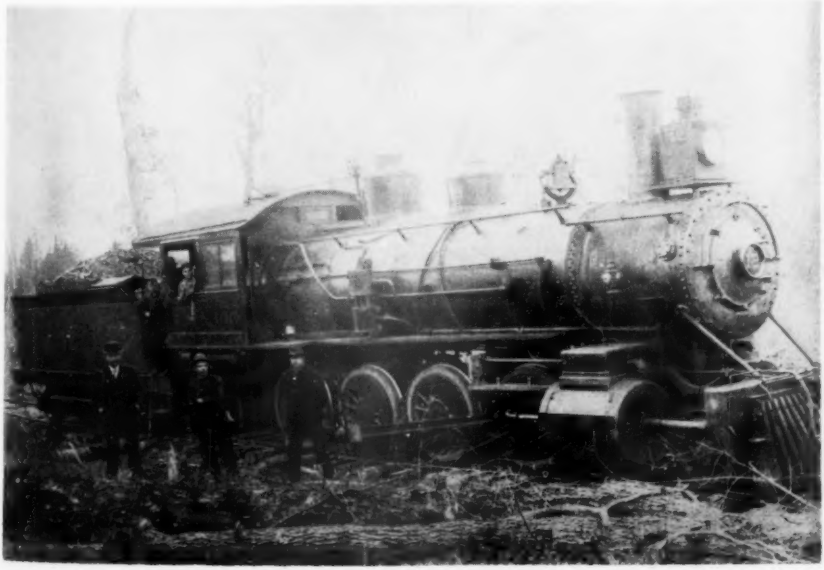
Very little data on the steam locomotives purchased by the Munising Railway exists, the only facts being certain that they were small and were for the most part bought second-hand. Data on locomotives purchased second-hand back in the early days are notoriously sketchy, extensive research on those of the Munising Railway unearthing only a few details. At any rate, the little railroad in 1896 purchased three small locomotives, numbered 1, 2, and 3. The first, number 1, was a saddle tanker, 0-4-4 in type, built by the H. K. Porter Company in 1895, having cylinder dimensions of 14″ x 24″, a tractive effort of 10,477 pounds, and costing $5,725 new. It was used as a switcher at Munising, and was renumbered No. 21 about 1901, with the arrival of two small 4-4-0's from the Union Pacific Railroad. It was evidently too small to perform the heavy work of switching cars of timber and logs, for in 1905 it was sold, the purchaser being unknown.

The other two little engines, numbered 2 and 3, and tiny Moguls, were built in 1896 by the Brooks Locomotive Works, had 16″ x 24″ cylinder dimensions and a tractive effort of 17,200 pounds. Both engines were renumbered along with No. 1 about 1901 as numbers 22 and 23. The latter engine was again renumbered about 1904 as No. 26. Both, too, were probably too small to haul the necessary cars on the steep grades of its main lines and were therefore sold in 1905, along with number 21, number 22 to the Michigan Iron Company of Newberry, Michigan, a lumbering town some one hundred miles from Marquette, number 26's purchaser being unknown.

In the meantime, in 1901 the railroad bought, secondhand, two small but speedy locomotives from the Union Pacific Railroad, each for about

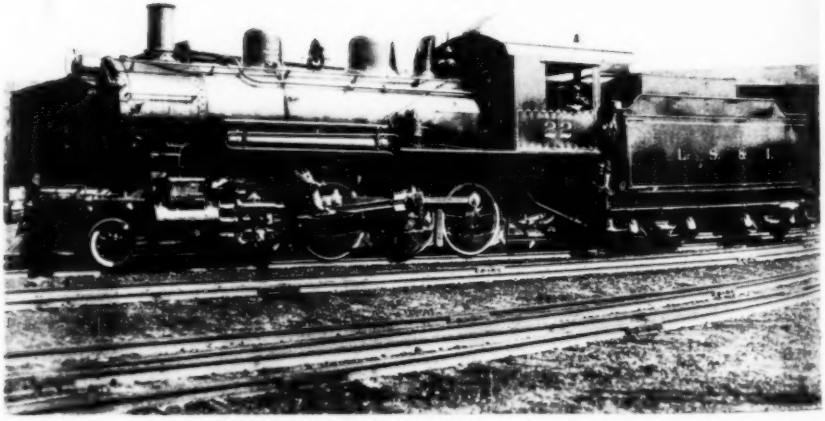


L. S. & I. #3 on Big Bay, Michigan run about 1923. Rebuilt in 1923 with Baldwin boiler.
Ex M. & S. E., M. M. & S. E., U. P. #686.

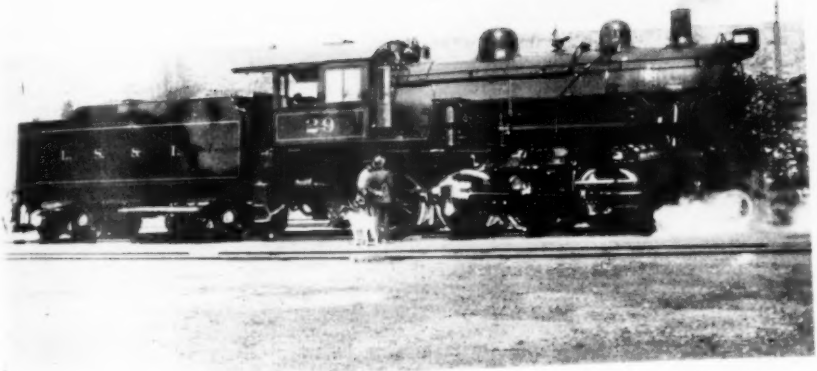


L. S. & I. 2nd #12 in the woods 1907. Ex L. S. & I. #3, re 17 in 1909, 11 in 1924.
The author owns the locomotive bell.

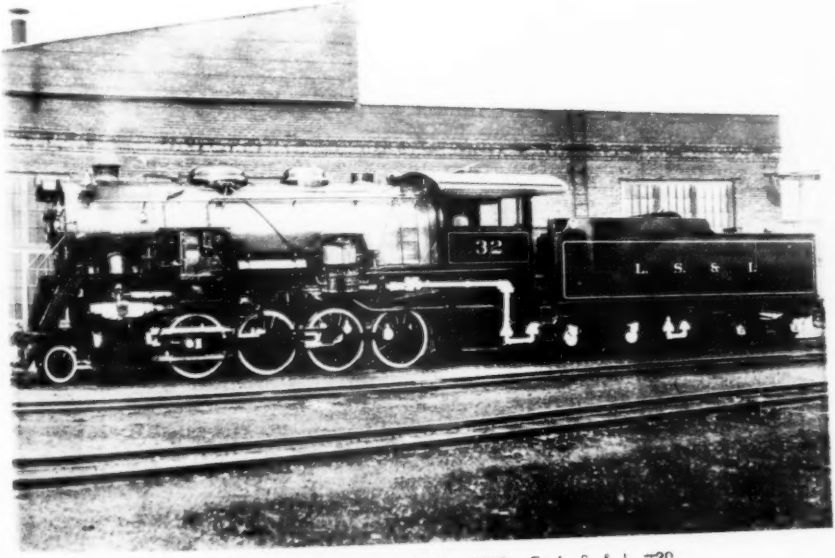
L. S. & I. #14 near Ishpeming, 1953. Ex. L. S. & I. #22. D. & N. M. #14.



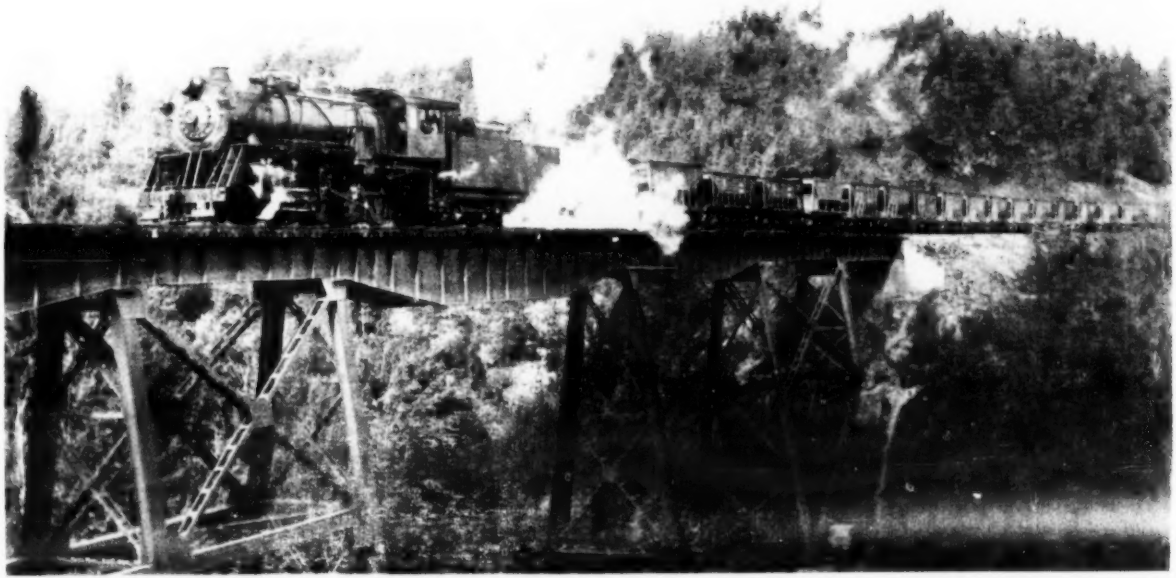
L. S. & I. #22 at Presque Isle about 1925. Ex M. & S. E., M. M. & S. E. #38.
Name of engineer, George L. O'Neill, on cab.



L. S. & I. #29 just after rebuilding in 1925. Ore dock approach at Presque Isle in background. Ex L. S. & I. 2nd #14.



L. S. & I. #32 at Presque Isle, 1926 or 1927. Ex L. S. & I. #20.



L. S. & I. #35 on Dead River Bridge, going up the hill to Negaunee with empty hoppers about 1927, tender booster working. Ex L. S. & I. #49 re 31 in 1924, re 35 in 1925.

L. S. & I. #35 on Dead River Bridge, going up the hill to Negaunee with empty hoppers about 1927, tender border working. Ex L. S. & I. #49 re 31 in 1924, re 35 in 1925

$1,150. They were assigned numbers 24 and 25, the former having borne number 658 on the U. P. and the latter No. 668. Number 24 was built in 1889 by the Rhode Island Locomotive Works, and number 25 in 1888 by the Rome Locomotive Works (though one roster and the AFE on these engines give for this engine a builder, Rhode Island, date 1889). Both had cylinder dimensions of 18″ x 26″ and a tractive effort of 18,553 pounds. They were given the duty of service on the East Branch, one for regular duty and the other for extra service. This duty no doubt seems odd, their having served on the U. P. as fast, light passenger engines, but probably, considering the light power of the Munising Railway, they seemed powerful enough at the time. They were reputed to have been very fast and figured in two wrecks in later years.

By 1905, the railroad, which probably was not as profitable to operate as had been hoped at first, had only these two locomotives, but it was necessary to purchase two more in October and December of that year. The first, numbered second 23, was another Mogul presumably larger and more powerful than the previous Moguls, although its weight and tractive effort are not in extant records. Cylinder dimensions were 16″ x 24″. It was purchased from the Atlantic Engine Company, its former owner being unknown, as well as builder and date of building, and cost $5,000. It doubtless served its purpose well, for it lasted throughout the history of the Munising Railway. The second engine, numbered second 22, and purchased in December, 1905, came from the Fitzhugh-Luther Company, being previously owned by the Williamsville, Greenville, and St. Louis Railway as its number 7. It was reputedly a 2-6-2 in type, was built in 1899 by Baldwin, had 18″ x 24″ cylinder dimensions, and exerted a tractive effort of 23,794 pounds. An original engine weight of 102,000 pounds was recorded for this engine, but since it was later rebuilt about 1920 into a Consolidation type, its original weight may have been less than this figure. It was assigned the duty of iron-ore service in the Gwinn-Princeton area, and little seems to be remembered about this locomotive by old engineers except that it had "pilots on both ends" and was painted a green color when it came to the Munising Railway.

In 1911, then, the Munising Railway brought, by its consolidation with the Marquette and Southeastern Railway, four tiny locomotives to the engine pool besides its quota of cars, main lines and branches, and other paraphernalia of a small railroad.

THE MARQUETTE AND SOUTHEASTERN RAILWAY 1902-1911

As many had predicted around the turn of the twentieth century, a new railroad was projected out of Marquette to connect the L. S. & I. and the Munising Railway. After the former railway had seen four seasons of iron ore service and the little Munising Railway was doing its bit in the Munising-Little Lake area, the Cleveland-Cliffs Iron Company organized a railroad company on October 3, 1900, to be called the Marquette and Southeastern Railway and to proceed from West Yard,

the terminal of the L. S. & I. near Presque Isle in Marquette, to a point on the Munising Railway at Lawson, Michigan, twenty-seven miles out of Marquette, in a southeasterly direction. Plans at the same time called for the Munising Railway to extend itself to Manistique, Michigan, a port on Lake Michigan some ninety miles from Marquette, but this extension was never built. The connection between the Munising Railway on the East Branch with the Ann Arbor-owned Manistique and Lake Superior Railway was deemed sufficient, as it still is today. As was obvious, the purpose of the Marquette and Southeastern Railway was to provide an all-rail line from the timber lands of the C. C. I. to its mines in Ishpeming and Negaunee.

Accordingly, a contract was let to the McDonel Brothers of Grand Rapids, Michigan, to build the railroad, which was done in 1901 and 1902. At the same time, a charcoal blast furnace was constructed at Marquette, on the north side of the city and adjacent to the main line of the M. & S. E. The railroad met considerable trouble in building its main line along the shore of Lake Superior in the city of Marquette and southeastward from the city. The line had to traverse on or near the property of some of the wealthiest and most prominent individuals in the city; they did not relish the sight and odor of coal smoke, the puffing of the engines, and the general nuisance associated with railroad operation. This route was the cheapest to build and the most accessible, for Marquette is a hilly city, as are its environs, and the cost of building the railroad elsewhere would have proven prohibitive. The line, too, had to run close along the D. S. S. & A. sidings and main line for about five miles before the two lines would diverge, and the South Shore naturally considered that its line had "been there first" and it did not relish competition. Nevertheless, the several lawsuits with individual property owners and the reluctance of the South Shore were overcome, and the railroad was built, operations beginning July 1, 1902. The directors of the railroad were practically the same as those who served in a similar capacity on the L. S. & I. and the Munising Railway.

Upon completion of the M. & S. E., direct connections had been established between Munising and Ishpeming, via Marquette, with connections with the South Shore at Marquette and Munising Junction and with the Chicago and Northwestern at Ishpeming and Little Lake. It was not long before passenger trains, mixed freights, local freight trains, and ore drags were busily occupied doing the daily business of what was practically one railroad. Very soon after beginning operations, the M. & S. E. was extended into some rich timber country out of Marquette; that is, to Birch and Big Bay, Michigan, northwestward from Marquette for a distance of twenty-four miles. Except for the short extension into the North Lake Iron Ore District in 1910 by the L. S. & I. (westward from Ishpeming) and for current modern extensions, the three railroads by 1905 comprised essentially what was known as the L. S. & I. from 1924 on. They had a main-line trackage of 94 miles, branches of 59 miles, and numbers of spurs into iron ore mines and lumber areas. In 1911, as has been noted, the Munising Railway and M. & S. E. were consolidated into the Munising, Marquette, and Southeastern Railway.

LOCOMOTIVES

The first two locomotives owned by the M. & S. E. were little 4-4-0's purchased from the Union Pacific in 1901, numbered on that railroad No. 662 and No. 686, both built by Rome Locomotive Works in 1888, and identical in other respects to the two 4-4-0's purchased at the same time by the Munising Railway. The M. & S. E. numbered them No. 31 and No. 32. In 1905, need for heavier locomotives caused the railroad to buy, second-hand from the L. S. & I., three compound locomotives, numbered on the L. S. & I. numbers 1, 2, and 4, and by the M. & S. E. numbers 33, 34, and 35. They were the Pittsburgh engines built in 1896. The only changes made by the M. & S. E. in these engines was their conversion to simple engines in 1910, it being intended to sell them and to purchase still heavier locomotives. The sale never took place, and they remained on the locomotive roster throughout the history of the M. & S. E.

In 1907 it was found necessary to purchase two heavier road engines. These came from Baldwin, were Consolidation in type, had cylinder dimensions of 20″ x 28″, and a tractive force of 34,000 pounds. Numbered 36 and 37, they were excellent engines; I recall engineers saying that, although they were rated with the same tractive effort as L. S. & I. engines No. 9 through No. 13, they usually could outpull and outperform the latter. I often saw these engines when I was a boy back in the twenties; they were then lettered M. M. & S. E. Their melodious whistles—with an urgency that made listeners pay attention—and the sound of their bells—resonant, low-toned, and typical of Baldwin in the 1900-1910 era—have become embedded in my memory. Three heavier locomotives arrived in 1910, were identical to numbers 9 through 13 on the L. S. & I. (i.e., they were the famous "monkey motions"), and were numbered 38, 39, and 40. These five engines, then, did the bulk of the road work for this railroad, aided by the two little 4-4-0's for passenger trains and the rebuilt compounds for mine work, switching, and pinch-hitting on mixed trains.

MUNISING, MARQUETTE, AND SOUTHEASTERN RAILWAY 1911-1924

In 1911, the Munising Railway and the M. & S. E. became the Munising, Marquette, and Southeastern Railway. Between that date and 1924 there were no major extensions of main line of this railroad, for sufficient prosperity accrued from the timber and ore business. There was, however, a renumbering of the locomotives of both roads, which feature is presented later. Two of the four 4-4-0's owned by the combination railroad figured in two head-on collisions, one near Munising in 1912 and another in 1917 near Marquette. I do not know which engines were involved in 1912, but in the 1917 collision they were numbers 31 and 34. A mistaken meeting point is given as the cause of the 1917 wreck.

Only one new locomotive was purchased by the M. M. & S. E., in 1916, when a heavy Consolidation came from Baldwin, numbered 44, identical to L. S. & I. engines 18, 19, and 20, and therefore known as a

"hog." This locomotive was needed to haul the heavy, long iron ore trains from the Princeton-Gwinn ore district, which was then producing much high-grade ore, to Marquette. The terrain between this district and Marquette, the ore port, was somewhat different from that between Negaunee and Ishpeming, in that there were two heavy but short grades through and out of Gwinn and one longer grade between Little Lake and Carlshend, six miles distant, where it was necessary to "double" the hill, despite the force of this engine's tractive effort of 55,900 pounds. All of the other engines of this road came from the two parent roads and need not be described.

LAKE SUPERIOR AND ISHPEMING RAILROAD COMPANY (1924-present)

Finally, in 1924, legal recognition was given to the fact that the three original railroads, heretofore described, were practically one unit in operation, movement of trains, similarity of motive power, and in outlook. The L. S. & I. Rail*way* and the M. M. & S. E. Rail*way* became the Lake Superior and Ishpeming Rail*road*. Since that date, except for very recently, the L. S. & I. has remained much the same in trackage and operation, and its motive power has been kept in good repair and excellent operating condition. Heavier rails were laid, some of the sharper curves were made less severe, larger cars were purchased, and several second-hand locomotives were received and put into first-class shape. Recently, the line has extended its west end into the mines at Humboldt and Republic, Michigan, to be worked by Ishpeming crews and personnel, and the East Branch on the old Munising Railway is being pushed on toward Grand Marais on Lake Superior. The Interstate Commerce Commission has been requested to grant a permit for the railroad to enter into an agreement with the Minneapolis, St. Paul, and Sault Ste. Marie Railroad (Soo Line) to ship iron ore over the latter's branch from a connection with the L. S. & I. at Eben Junction (twenty miles west of Munising) to Rapid River, on Lake Michigan. Present plans call for a new ore dock to be built near the latter point by the L. S. & I., to convey pelletized iron ore to lake vessels. The railroad thus looks forward to a very bright future.

However, a sentimental price is being paid for this progress, at least so far as steam locomotive lovers are concerned: the railroad has bought fourteen Diesel locomotives, ranging in power from 1,000 through 1,500, 1,600, and 1,800 horspower, and still others are to be purchased. Without question superior in economy and efficiency to the line's steam locomotives, these Diesels now perform by far the bulk of the railroad's business; only fourteen steam engines remain of the forty the railroad has owned and operated, and they are used seasonally only.

LOCOMOTIVES

By 1924, I was getting old enough to take a deeper interest in all the engines of the L. S. & I., including those of other roads in the Upper Peninsula. What had been to me just a "choo! choo!" was rapidly becoming a machine of graceful lines, appealing to the senses of hearing,

sight, and smell. The engines of the three railroads were nearly all renumbered, with the smaller ones having the lowest numbers and the largest the higher numbers. Some modifications had to be made later as medium-sized engines had to be fitted into the number pattern. Extensive improvements were made also, with the policy of the two older railroads in keeping their motive power in number-one shape being continued. Eight engines were entirely rebuilt, three received tender boosters, many were superheated and provided with more modern gear arrangements, and practically all were given Worthington feed water heaters, Nicholson thermic syphons, and compound air pumps. Locomotives were also kept well painted, bells highly polished, and a distinctive trim in yellow paint was devised for tender, engine cab, and sand dome. The rims of the wheels and the gear and rod arrangement were trimmed in light gray, boiler section in a dark greenish gray; the smoke box was painted jet black, and the letters and numbers of number plates and builder's plates were kept sandpapered to keep them clear and distinct. Some of the smaller engines had certain engineers' names painted on the cab, first just above the number, later with name and classification data alone. The engines of the L. S. & I., then, always looked extremely neat, and some engines downright handsome. A few of the older engines had beautifully resonant bells and very pleasant whistles, whose wail haunted one long after they blew for crossings and stations. Put all of these features together, and one viewed and listened to a bevy of machines that were a pleasure to watch as they sped down the main line, switched at some junction point, worked hard up some short but steep incline, or plowed through the deep snow drifts in winter. Being a person very susceptible to the beauty of sounds and sights, I drank in all this mechanical wonder to the point where these engines became a part of my life.

Second number 1, the Lima Shay locomotive purchased in 1906, I never saw, but I heard many comments about its pushing ability. It retained its original number upon the consolidation of the three railroads in 1924, but shortly afterward it was exchanged for engine number 26, to be described later.

Engines 2 and 3, old M. M. & S. E. engines numbered 33 and 32, were the 4-4-0's bought from the Union Pacific in 1901. I barely remember number 2, but fairly often saw number 3 always speeding away somewhere, either with the passenger train from Munising to Ishpeming, an officials' "hot shot" inspecting the railroad, a miners' extra returning from some Fourth of July picnic, or a wood workers' special during the depression of the 1930's. They were very fast engines, and though small, could pull a fair-sized number of wooden coaches (the L. S. & I. owned one all-steel coach only in its career) of the late nineteenth-century era, with open platforms, red plush seats, and brass oil lamps. Number 3 had been rebuilt in 1923, being given a new boiler by Baldwin, modern disk pilot wheels, and its tractive force was upped to 21,000 pounds. Somewhat later it was equipped with two pairs of new drivers. Though I am unable to corroborate this supposition, I believe that it received another bell from some other engine. It had the most beautiful tone of

any bell that I heard on this railroad, and since it sounded like an early Baldwin bell, I hazard the guess that this bell came possibly from M. M. & S. E. number 35 or 37, both Baldwins built in 1899 and 1907, respectively. But no matter, number 3 was a handsome engine throughout, nice to look at, and nice to watch perform. In 1929 number 2 was scrapped; in 1942 number 3 was sold to the Detroit, Caro, and Sandusky Railroad, a small railroad that went out of business in 1953. What happened to its beautiful bell? It must grace some railroad engine fan's home or summer cottage.

Engine number 4, old M. M. & S. E. number 35, comes next. This had been the little 2-6-2 bought in 1905 by the Munising Railway from the Fitzhugh-Luther Company. Some time after 1920, it had been rebuilt into a Consolidation locomotive. I do not recall ever seeing this engine; doubtless because of its small size it was used in later years around the ore mines in Ishpeming and Negaunee, which in the 1920's seemed far from Gwinn, where I was raised as a small boy.

Next in point of rank were engines 5, 6, and 7, which were little 0-6-0's purchased by the L. S. & I. from the Pittsburgh Locomotive Works in 1896. Because cars had increased greatly in size and capacity over those of the 1890's, these engines after 1924 were no doubt used only for the lightest of work. Numbers 5 and 7 were sold to the C. C. I., Furnace Department, in 1932, but number 6 was scrapped in 1931. Both engines were cut up for scrap in 1947 and 1948 right on the plant grounds; I can still see in my mind's eye the upside-down cab of number 5 on the ground, undoubtedly unceremoniously thrown there by the wrecking crew. Has it not always been true that the workers of a new age have no respect for a relic of an old?

Moving down the roster, we come to engines 8 and 9; they were also old Pittsburgh locomotives purchased in 1896. Number 8 had the name of an engineer, "Romeo Pepin," painted on her cab in the early years after 1924, and I occasionally saw it working in the Ishpeming ore yard. Both engines were sold to the C. C. I., Land Department, in 1934 and 1937, respectively, and the last time I saw engine No. 8 was in about 1935, while it shuttled some flats in and out of the spurs of a little settlement near Munising. It had a huge diamond stack then, which is probably the same one which lies on the ground near the round house at Presque Isle, for C. C. I. engines were repaired and shopped by the L. S. & I. shops.

Four other Pittsburgh-built engines, numbers 10 through 13, I recall much more vividly. These were called the "old compounds," and remained excellent little engines long after 1924. It was a pleasure to watch them whisk their quota of cars around freight yards or occasionally pinch-hit on a mixed run. Though they were otherwise identical, engines 10 and 11 had smaller drivers and had a slightly higher tractive effort, 34,200 pounds compared to number 12 and 13's 30,600 pounds. Their whistles, so much different from those on the other engines of this road, and their bells, having a somewhat low "sugary" tone, always intrigued me. The railroad sold number 13 to the Manistique and Lake Superior Railroad in 1948; it saw service on that road until September

12, 1952, when it was burned in a round house fire in Manistique. Engines 10, 11, and 12 lingered on the L. S. & I. until 1953, when they were scrapped: the growl of the Diesel by that time had begun to be heard in the Upper Peninsula, as it had elsewhere, and Diesels and engines of 1896 date do not seem to fit together on a modern railroad. The boilers of numbers 11 and 12 have been saved, to be used when the railroad has no more steam engines, for making steam for the ore dock. In the late fall ore season, when the temperature falls below freezing, steam is necessary to thaw out the soft ore in hoppers which are set on the dock for dumping and in the dock pockets so that it will flow freely into the holds of the lake vessels. Throughout the years until the present time, steam engines have been and are used for this purpose.

Engines 14 and 15, next on the roster in size, had been the two Duluth and Northern Minnesota logging engines purchased by the L. S. & I. in 1919. I saw and watched them frequently; usually they were used for spotting cars around the ore mines, for pulling log trains when other regular engines for this work were temporarily out of service, and occasionally for working the mixed trains on the road. Engineers always liked their big cabs, and they could handle a phenomenally big load. A peculiar feature of theirs was the noticeable steam-sounding peep emitting out the smoke stack just before the exhaust. Not so pleasant on the ear were their banshee-like whistles and their harsh pealing bells. Nevertheless, they were good workers, at least enough so that they are still around, though seldom seen in service. Engine No. 14 is on stand-by service, used in winters in Negaunee and Ishpeming on "roustabout" service (there is no shipping of iron ore from the dock in the winter months), when there is no Diesel available. Engine No. 15 stands forlornly, it seems, on the dead track at West Yard, no doubt awaiting its number to be called, to be hauled away to the place where all dead and unneeded steam engines, like dead souls, go.

The next two engines, slightly less powerful and a little lighter, are numbers 16 and 17, both Baldwins of 1907 build and from the M. M. & S. E., having been, on that road, numbers 36 and 37. These locomotives, from the time that I first remember until the thirties, were almost exclusively used for mixed-train service between Marquette and Princeton. A mixed train arrived from Marquette in the Gwinn district at about 10:30 in the morning and returned to its terminal at about 2:30 in the afternoon. Between times they "switched the mines" in the area and pushed the hoppers whose ore was to be crushed up the incline of the crusher plant near Gwinn. As such, I saw them practically every day for at least ten years. They were not very big, but I marveled at the loads they could pull or push. In winters, they were as efficient; being able to plow their way through the snow with ease and to perform the required work, which was much more difficult then because of cars frozen to the rails before moving. For some time after 1924, engine No. 16 carried the name "Patrick McCarthy" on its cab.

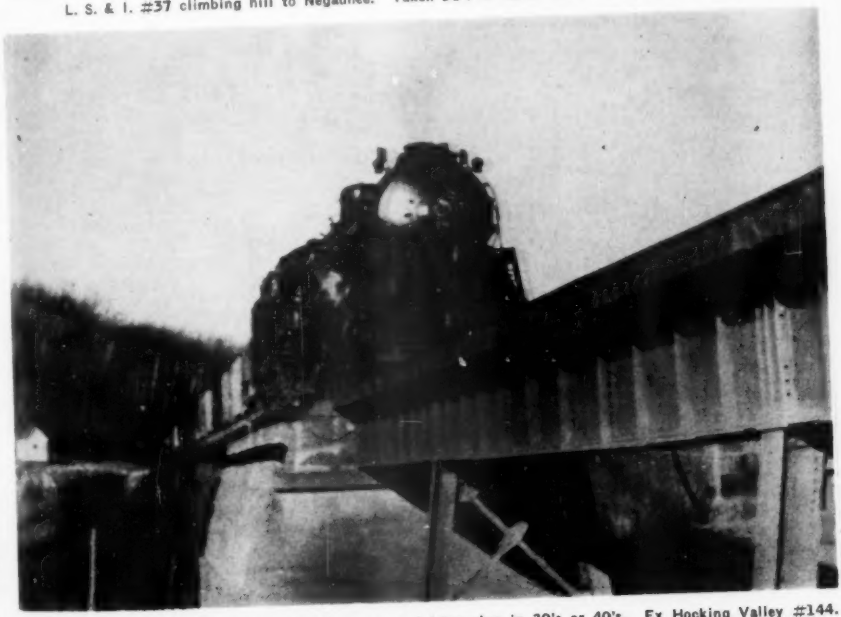
In 1930, they were renumbered 6 and 7, since numbers 16 and 17 were given to two medium-sized Mikados purchased that year from the Peckham Engineering Company and once having been numbers 5 and 6

on the Cambria and Indiana Railroad. These latter engines were used in the Ishpeming-Negaunee area only; therefore, I seldom saw them until later years. They had a squat appearance, small drivers and big boilers, and were quite heavy (231,900 pounds exclusive of tender) and could push heavy trains of iron ore. Both were Baldwins, built in 1913 and 1915, respectively. Both, too, were scrapped in 1955 and 1954, gone to a haven of discarded steam engines.

When we come to the next eight engines, we witness those that will seem to me to be the eternal symbols of the "L. S. & I. engines," for I watched them more than any of the other engines of this road. They appeared to be able to do any work demanded of them, within reasons as to loads. I once saw one in 1939, pulling an officials' special over the line. These locomotives were the old "monkey motions" bought in 1910 from Alco-Pittsburgh. They were numbered 18 through 25 in 1924, three having come from the M. M. & S. E. (numbers 38, 39, and 40), and the others came from the L. S. & I. (numbers 9 through 13). In the thirties number 18 inherited the name "Patrick McCarthy" from Engine No. 6; number 22 received the name "George O'Neill"; and number 23 was offered the name "Philip Smith," my father's old engineer on the Princeton-Munising run, a mixed train which hauled, besides passengers, all sorts of articles, from acid to zwieback. Beginning with number 23 in 1928 and ending with number 19 in 1934, all engines except number 25 were completely rebuilt in the Presque Isle shops, receiving wider fireboxes, new superheated cylinders and cylinder saddles, and disk pilot wheels; their boilers were raised and smoke stacks shortened; sand domes and bells exchanged places; and they were equipped with thermic syphons and feed water heaters. They are, in my opinion, the handsomest engines the railroad possesses: they appear to have grace because of their fine proportions and distribution of appurtenances. As for performance, they are vastly improved over their old saturated steam days. I recall my father having said: "They're just like firing a cook stove," and engineers express no regrets because of engine failures. Engines 18 through 24 are still in active service in Ishpeming and Negaunee during the ore season, at or near the end of which one or two may be used for steaming ore on the ore dock. I fear, however, that even their days are numbered, despite their efficiency, for I note a gradual encroachment of the Diesel in the Ishpeming area, with three or four Diesels having been observed performing similar work to theirs. Engine 25, though superheated and having been given cylinders a half inch larger in diameter in the thirties, was just this year scrapped, a prelude, no doubt, to what is to come for the others.

Engine number 26, already referred to, arrived in 1924, having been exchanged for Lima number 1, from the Southern Iron and Equipment Company. Number 26 had been Buffalo, Rochester, and Pittsburgh Railroad number 251. When it came to the L. S. & I., it was at first used for mixed-train service on the Munising-Ishpeming run. This engine, built in 1902 by Alco-Brooks, was the quickest Consolidation that I have ever seen; its bell had the beautiful old Brooks tone, and its exhaust had the sound, when the engine was working hard or fast, of a

L. S. & I. #37 climbing hill to Negaunee. Taken 30's or 40's. Ex Hocking Valley #142.



L. S. & I. #38 on Dead River Bridge for Negaunee and Ishpeming in 30's or 40's. Ex Hocking Valley #144.

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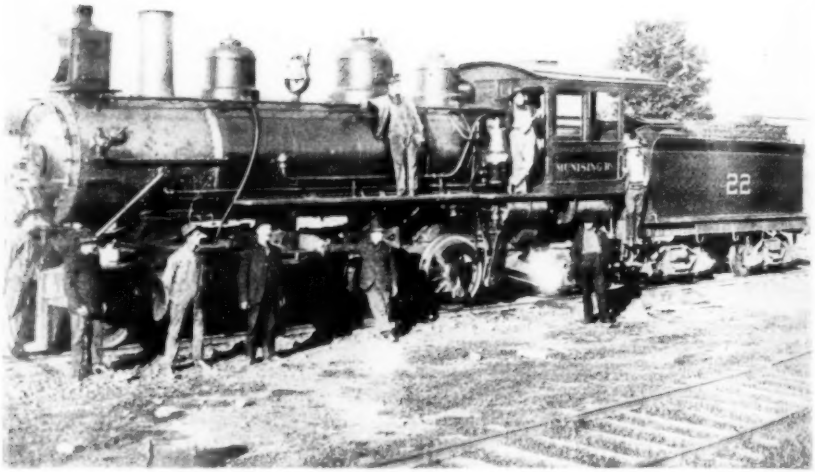
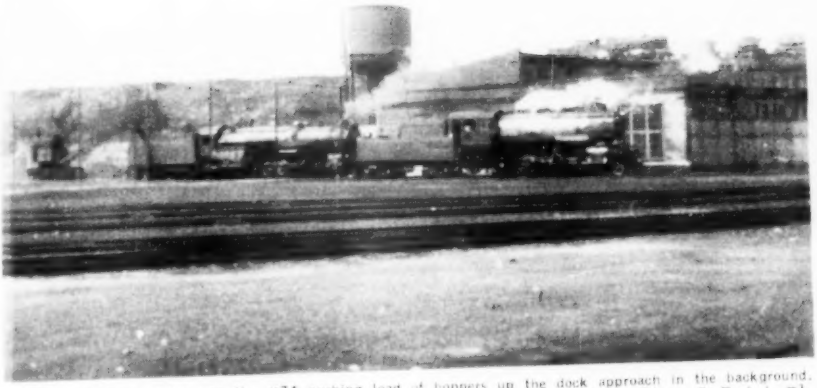


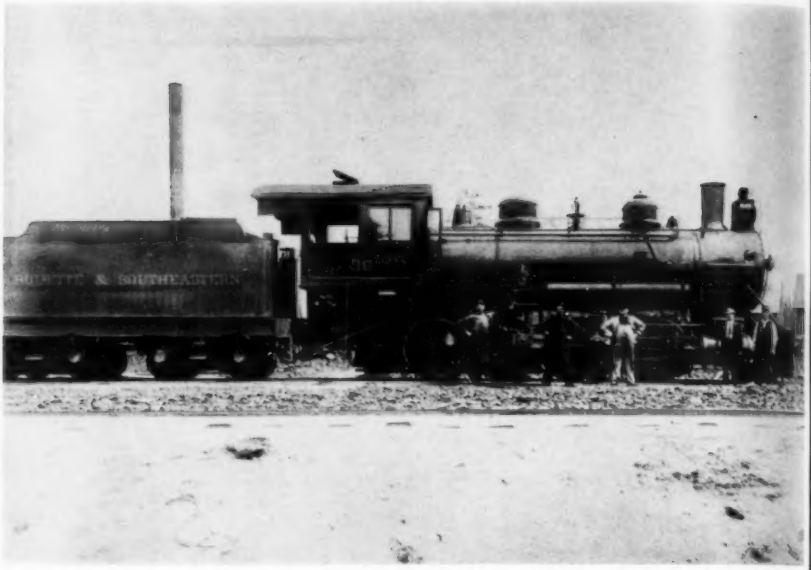
Munising Ry. 2nd #22 at Princeton, Mich., 1906. Ex. W. G. & St. L. #7. M. M. & S. E. #35. L. S. & I. #4. Sold to the Brunswick Lumber Co. in 1928.

Two engines pushing a wedge plow at Munising, Mich.

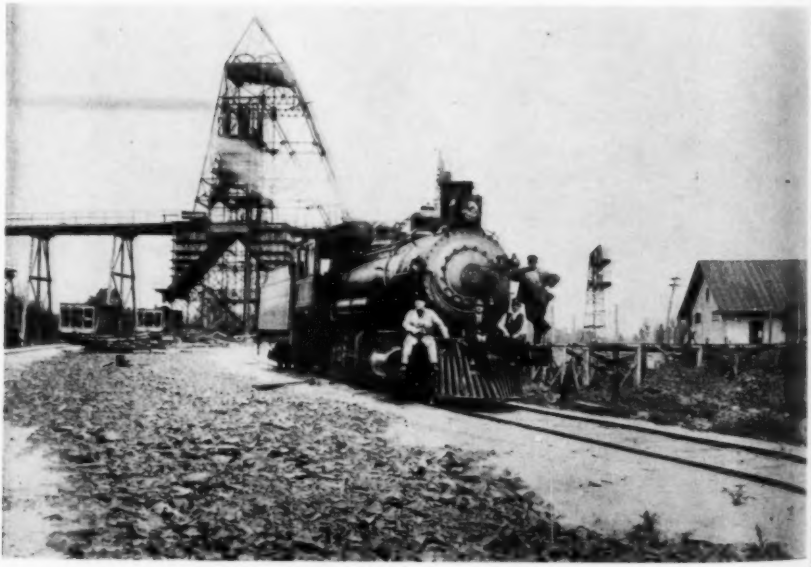


Round house at Presque Isle and the =34 pushing load of hoppers up the dock approach in the background. Engine to the left is L. S. & I. =36, ex H. V. =140, one to the right is L. S. & I. =30, ex C. R. & I. =1.

M. & S. E. =32 and train at Princeton, Mich. ready to leave for Little Lake to meet C. & N. W. day train from Chicago and Milwaukee. Taken about 1910. Ex U. P. =686, M. M. & S. E. =32, L. S. & I. =3, sold to Detroit, Cairo & Sandusky in 1942.



M. & S. E. #36—side view, taken about 1912.



M. & S. E. #36 at Gwinn iron ore mine about 1912. Became L. S. & I. #16, re 2nd 6 in 1930.

rifle crack. In fact, so quick was it, that I heard that it was bumped off its mixed run and put to work moving heavier material, in this case, of course, iron ore. I frequently saw it in the Gwinn area; its snappy movements and saucy meanderings amazed me. However, engineers and firemen claimed that it was not good at hard sustained pulling, and it was awkward on rough track, often jumping the rails (due, I have been told, to its Southern gear arrangement). I had occasion once in awhile to see how it sometimes failed to pull well; nevertheless, after it got going, it really "went places." In 1951, this engine was scrapped, the first to go after the influx of the railroad's Diesels.

The next two engines, numbers 27 and 28, were my favorites, in addition to engines 18 through 25, especially number 28. They were originally L. S. & I. engines, numbers 15 and 16, having been bought in 1905 and put together the same year by Baldwin. In my view as a boy, they were large enough to give me an awesome sense of their power and small enough, actually speaking, to have a personality all their own. They had the old, rounded domes of the pre-1910 Baldwin era, with a heavy, thick rim around the bottom, square-ended counterweights on their drivers, and the whistle of number 28 was a pleasure to hear. Number 27's bell as well as whistle had been changed, and were not at all melodious, but number 28 retained her beautifully resonant bell, which always filled me with a vague sadness mingled with tenderness when I heard it. Railroad men called it "clangy like a cow bell," but to me it spoke of plaintiveness and intimacy. In their day, these engines had been the mainstay of the ore hauling business on the main line, but when I knew them back in the twenties and thirties, they had been relegated to ore mine switching and steam shovel duty. Sometimes they were used for log trains and on mixed runs and snow plow duty. They retained almost their original appearance, except for a few minor changes, like those of receiving Walschaert valve gear, feed water heaters, compound air pumps, and thermic syphons. Number 27, also, had received a new front end on its smoke box. Both engines are gone now, having been sold for scrap at the beginning of this year, but their boomy exhaust, the clank of their rods, their yeoman service winter and summer, and the clang of number 28's bell remain in my memory forever. As they pass away, shiny new Diesels take their place, the symbols of impersonality in railroad operation.

A third engine, originally very similar to numbers 27 and 28 and numbered No. 29 (ex-L. S. & I. No. 14) takes its place at this point in this recital of the railroad's locomotive roster. This engine was built by Alco-Pittsburgh in 1906, and was first used for service identical to that of numbers 27 and 28. However, in 1925 it was completely rebuilt in the railroad's shops, receiving the same treatment as the seven Alco-Pittsburghs already mentioned, except that its boiler remained low on the drivers and cylinder saddle, and bell remained between sand and steam domes. After rebuilding, this locomotive was used for local freight duty between Marquette and Munising. I still recall its authoritative puff as it steamed by the mixed train I was riding in, and which had taken the siding for it, back in the 1920's, ringing its beautiful bell

(almost identical to number 28's) and getting away with its long train of box cars, gondolas, and flats with a pick-up that meant no nonsense. By the late 1930's, it was no longer used for this service and appeared on both mixed trains and iron ore drags, receiving in about 1934 a tender booster from engine number 32, thus boosting its tractive effort, when working, to a powerful 59,825 pounds. Its cab wore "Charles Young" for several years. During World War II it went to the Ishpeming region, where it performed regularly until two years ago; now it rests in an auxiliary round house—really a "hot house" for steaming ore—at West Yard, waiting for a call to service that may never come. Its days, too, are no doubt being crossed off by the hand of Fate, with few days left to count.

Two more second-hand engines, second 30 and 31, were purchased in 1925, this time from the General Equipment Company; they had been Chicago River and Indiana Railroad numbers 1 and 2. Both are Consolidations, heavier than number 29, with slightly higher drivers, and were used primarily to push ore upon the dock to relieve lighter engines which were growing old and could not haul as much ore as they, while the ore-shipping business kept increasing. Occasionally one of these engines would pinch-hit on the road pulling ore drags, but they were reputed not to be particularly good road engines. Therefore, they have for the past twenty years been used exclusively for pushing hoppers onto the dock and doing heavy switching in the big ore yards at West Yard. They were built in 1913 by Alco-Schenectady, and in appearance are very similar to the Consolidations built for the New York Central System in the 1910's; one wonders if they originally came from that railroad. Engine 30 has just met the inevitable torch, but number 31 still remains on stand-by service in the round house, nestled among the Diesels who have taken over its one-time duties.

The four heaviest Consolidations purchased in 1916 by the L. S. & I. (numbers 18, 19, and 20) and the M. M. & S. E. (number 44) are now numbered 32 through 35, though numbers 34 and 35 were at first numbered 30 and 31 in 1924 until the arrival of second numbers 30 and 31 referred to above. Numbers 32 through 35 became the backbone of the ore-hauling service on the main line after their date of purchase and remained such until 1930, when three huge Santa Fe's came. As such, they were given the best of care including receiving three tender boosters with new tenders for engines 32, 33, and 35 between 1925 and 1927. These auxiliary engines increased their tractive effort to 67,725 pounds, but this figure was raised to 72,309 pounds when the tractive effort of each engine was boosted to 60,484 pounds later. Since iron ore is shipped only during the period from about April to December, and since these heavy engines were only infrequently used in winter, their life has been prolonged. Consequently, they are still around on stand-by service when the occasion demands. In the early 1930's, number 32 lost her booster to number 29. Numbers 32 and 34 usually do the pinch-hitting for Diesels, when the latter are scarce or undergoing repairs, but even numbers 33 and 35, which still have their boosters, do heavy switching when needed. So these old "hogs," which used to work so hard in

pulling a long ore train that one thought they would tear themselves apart, with tenders (from the boosters) shooting clouds of steam into the air into the bargain, will undoubtedly be turned out, as "creeping Dieseldom" permeates the railroads of Upper Michigan.

The last three and largest engines purchased by the L. S. & I. arrived in 1930, and were the most powerful engines that people had ever seen up in this region up to that time. People wondered at their double sand domes (side by side in line with the circumference of the boiler), their small cabs, and their enormously wide fire boxes. As stated before, they were Santa Fe in type, and came from the Hocking Valley Railroad, numbered on that road 140, 142, and 144, but renumbered on the L. S. & I. 36, 37, and 38. They were a whopping 555,000 pounds in weight and exerted a traffic effort of 74,435 pounds. As such, they could walk up the 1.63% grade to Negaunee with 85 empty ore hoppers, take down "whatever the air could hold," and push 25 loads of ore onto the dock at Marquette, in cars of both 50 and 70 ton capacity. When they first came, railroad men were dismayed to discover how many draw bars they broke, how the rails squealed on certain of the sharper curves, and how on one of their first trips to Ishpeming they were too much for the wye there. Seldom were they seen east of Marquette because of limitations of road bed and bridges. With the shortening of certain curves and laying of heavier rail, they came into their real stride and did the very substantial work of hauling the road's iron ore, and went steadily through the difficult World War II period, when the L. S. & I. was hard pressed to ship enough of the incredibly heavy but vital iron ore. They earned many times over what they had originally cost, truly. Now it seems only yesterday that they were rudely dismissed from service, number 37 being cut up at the shops in 1953 and numbers 38 and 36 sold to a local scrap iron dealer in 1954 and 1955, respectively. Number 38, as if resenting her rejection, could not be pushed into the yard of the iron dealer: it kept snapping the light sixty-pound rail, turning and twisting what did not break, and in general raising havoc with the road bed. Even the Diesels of the South Shore (which services the scrap dealer) were hard put to it to pull the derailed No. 38 far enough back so that it would climb the re-railers. Finally, about three weeks after it was headed for its resting place, the engine had to be cut up on the spot; it never entered the scrap yard!

What, then, does the L. S. & I. have left in the way of steam locomotives? Seven rebuilt light Consolidations used in summer and four heavier Consolidations languishing in the round house ready to go, but almost never called. And out on the dead track like rusting numbers 6, 7, 14, 15, 29, and 31 as grim reminders to the rest that the trail leading to the local scrap iron company has only to have its switch open so that another veteran iron horse can be pushed therein by a Diesel.

No longer is heard the unremittingly powerful exhaust of the Santa Fe's as they crawled up the hill to Negaunee; the wail of engine 28's whistle has long since been silenced from the time when it blew for a lonely crossing near Gwinn; the lightning-like speed of engine 3 is now just a memory as it whisked its C. C. I. special car, number 61, from

Marquette to Munising; the sugary peal of engine 13's bell has been stilled forever, though its echo lives in the mind of one who recalls its tolling while the engine was switching in the Munising yards. Yes, progress is indubitable and inevitable; it must be welcomed, for sentiment cannot run modern railroads. Yet something wonderful used to speed down those rails.

Lake Superior & Ishpeming Ry. Locomotives

Table I

1- 4	2-8-0	B-4	Pittsburgh	1615-1618	1896	20&31x28"	50"	148000
5- 6	2-8-0	B-4	Pittsburgh	1619-1620	1896	20x26"	50"	142000
7-11	0-6-0	A-3	Pittsburgh	1610-1614	1896	19x24"	44"	107000
12-14	0-4-0	A-2	Brooks	?	1882	16x22"	50"	———
15	2-8-0	B-4	Baldwin	25725	1905	22x30"	50"	198000
16	2-8-0	B-4	Baldwin	25782	1905	22x30"	50"	198000
17	Vacant							
18-20	2-8-0	?	Baldwin	43105-7	1916	26x30"	50"	270000
21-22	2-8-2	MK	Baldwin	39664-5	1913	20x28"	44"	178000
Second								
1	Shay	?	Lima	1619	1906	(3)17x18"	46"	186000
9-13	2-8-0	?	Pittsburgh	46939-43	1910	20x28"	48"	174500
14	2-8-0	B-4	Pittsburgh	39637	1906	22x30"	50"	209000

Notes

Nos. 1-4 cost $11,380.94 each and Nos. 1, 2 and 4 were sold to the Marquette & Southeastern Ry. in 1905 for $7,000.00 each. No. 3 was assigned No. 12 in 1906 and No. 17 in 1909.

5-6 were rented to the Grand Rapids & Indiana R. R., 1897-1898. They were assigned Nos. 7 and 8 in 1909.

7-9 were assigned Nos. 2, 3 and 4 in 1909.

10-11 were sold to Cleveland-Cliffs Iron Co., Furnace Dep't in 1919 (No. 10) and 1920 (No. 11) and were assigned Nos. 5 and 6 in 1909.

12-14 were purchased second hand from the J. I. Gardner Co. in 1897 and are reported as having seen service on the Erie Ry. Nos. 12 and 13 were sold in 1909, purchaser unknown and No. 14 was sold the same year to the Independence Lumber Co. They were assigned Nos. 2, 3 and 4 in 1906.

15-16 cost $14,697.00 each.

21-22 were purchased from the Duluth & Northern Minnesota Ry., Nos. 13 and 14, in 1919 for $17,000.00 each.

2nd 14 cost $15,800.00 and was in a wreck June 2, 1916.

2nd 1 cost $16,900.00.

2nd 9-13 cost $14,335.00 each and, at some unknown date the cylinders were enlarged to 20½x28".

The L. S. & I. renumbered their locomotives in 1906 and again in 1909. Unless otherwise indicated, all locomotives were purchased new from the builder.

Munising Railway Locomotives

Table II

								On Drivers
1	0-4-4T	F-2	Porter		1895	14x24"	———	———
2- 3	2-6-0	B-3	Brooks	2665-2666	1896	16x24"	50"	———
24	4-4-0	C-2	Rhode Island	2176	1889	19x26"	55"	63000
25	4-4-0	C-2	Rome	442	1888	18x26"	55"	63000
Second								
23	2-6-0		No data					
22	2-6-2	C-2	Baldwin	16902	1899	18x24"	44"	102000

Notes

No. 1 renumbered 21 in 1901, cost $5,725.00 and sold in 1905, purchaser unknown.
2 renumbered 22 in 1901 and sold in 1905 to Michigan Iron Co., Newberry.
3 renumbered 23 in 1901 and 26 in 1904, sold in 1905, purchaser unknown.
24 purchased from Union Pacific R. R., their No. 658 in 1901 for $1,155.92.
25 purchased from Union Pacific R. R., their No. 668 in 1901 for $1,149.68.
2nd 23 purchased from Atlantic Engine Co. in 1905 for $5,000.00. No data appears to exist for this locomotive.
2nd 22 was purchased from Fitzhugh-Luther Co. in 1905, cost unknown but this engine was delivered to the Williamsville, Greenville & St. Louis Ry., No. 7, by the builder.

Marquette & Southeastern Ry. Locomotives

Table III

							On Drivers	
31	4-4-0	C-2	Rome	436	1888	18x26″	55″	63000
32	4-4-0	C-2	Rome	401	1888	18x26″	55″	63000
							Locomotive	
33-34	2-8-0	B-4	Pittsburgh	1616/1618	1896	20&31x28″	50″	148000
35	2-8-0	B-4	Pittsburgh	1615	1896	20&31x28″	50″	148000
36	2-8-0	B-4	Baldwin	30828	1907	20x28″	50″	168500
37	2-8-0	B-4	Baldwin	30841	1907	20x28″	50″	168500
38-40	2-8-0	?	Pittsburgh	46944-6	1910	20x28″	48″	174500

Notes

No. 31 was purchased in 1901 from the Union Pacific R. R., No. 662 for $1,165.77.
32 was purchased from the same company, road No. 686 for $1,134.48.
33 was purchased from the L. S. & I. in 1905 for $7,000.00, converted to simple in 1910—20x28″.
34 same as No. 33. There is some confusion as to the identity of these two locomotives and their former L. S. & I. numbers.
35 formerly L. S. & I. No. 1—like Nos. 33 and 34.
36-37 purchased new but No. 36 arrived in December, 1906 carrying 1907 on the builder's plate.
38-40 purchased new for $14,335.00 each. Identical with L. S. & I. Nos. 9-12 and cylinders were enlarged to 20½x28″.

Munising, Marquette & Southeastern Ry. Locomotives

Table IV

31	4-4-0	Rome	436	1888	— ex M&SE	No. 31
32	4-4-0	Rome	401	1888	— ex M&SE	No. 32
33	4-4-0	Rome	442	1888	— ex Munising	No. 25
34	4-4-0	Rhode Island	2176	1889	— ex Munising	No. 24
35	2-6-2	Baldwin	16902	1899	— ex Munising 2nd	No. 22
36	2-8-0	Rhode Island	30828	1907	— ex M&SE	No. 36
37	2-8-0	Baldwin	30841	1907	— ex M&SE	No. 37
38-40	2-8-0	Pittsburgh	46944-6	1910	— ex M&SE	No. 38-40
41	2-8-0	Pittsburgh	1616/1618	1896	— ex M&SE	No. 33/34
42	2-8-0	Pittsburgh	1615	1896	— ex M&SE	No. 35
43	2-8-0	Pittsburgh	1616/1618	1896	— ex M&SE	No. 33/34
44	2-6-0	No data			— ex Munising 2nd	No. 23
2nd 44	2-8-0	Baldwin	43108	1916	— purchased new, identical to LS&I	Nos. 18-20

Notes

In a head-on collision in 1912, two of the four 4-4-0's were involved but which two is unknown.

No. 31 Wrecked in a head-on collision with No. 34 August 12, 1917, dismantled in 1920.

32 New boiler furnished by the Baldwin Works No. 6860 in 1923.

34 In collision with No. 31, as above, sold in 1923 to H. P. Bourke.

35 Rebuilt to a 2-8-0 type locomotive about 1920 with 120000# on drivers.

36 Cracked her bell and one from another engine applied.

41-43 These were the "old compounds."

44 In 1916 sold to Cleveland-Cliffs Iron Co., Lumber Dep't.

Lake Superior & Ishpeming R. R. Locomotives 1924-1956

Table V

	1	Shay	?	Lima	#1619	1906 — ex LS&I 2nd #1
	2	4-4-0	E-1	Rome	442	1888 — ex MMSE #33
	3	4-4-0	E	Rome	401	1888 — ex MMSE #32
	4	2-8-0	C-7	Baldwin	16902	1899 — ex MMSE #35
	5-7	0-6-0	SW	Pittsburgh	1610-1612	1896 — ex LS&I 3rd 2-4
	8	2-8-0	C-5	Pittsburgh	1620	1896 — ex LS&I 2nd #8
	9	2-8-0	C-5	Pittsburgh	1619	1896 — ex LS&I 2nd #7
	10	2-8-0	C-5	Pittsburgh	1616/1618	1896 — ex MMSE #41
	11	2-8-0	C-7	Pittsburgh	1617	1896 — ex LS&I #17
	12	2-8-0	C-7	Pittsburgh	1615	1896 — ex MMSE #42
	13	2-8-0	C-7	Pittsburgh	1616/1618	1896 — ex MMSE 43
	14	2-8-2	MK-1	Baldwin	39665	1913 — ex LS&I #22
	15	2-8-2	MK-1	Baldwin	39664	1913 — ex LS&I #21
	16	2-8-0	SC-5	Baldwin	30828	1907 — ex MMSE #36
	17	2-8-0	C-5	Baldwin	30841	1907 — ex MMSE #37
2nd	16	2-8-2	MK-1	Baldwin	40917	1913 — ex S&I #5
2nd	17	2-8-2	MK-1	Baldwin	41903	1915 — ex S&I #6
	18-20	2-8-0	C-5	Pittsburgh	46941-3	1910 — ex LS&I 2nd 11-13
	21	2-8-0	?	Pittsburgh	46945	1910 — ex MMSE #39
	22	2-8-0	?	Pittsburgh	46944	1910 — ex MMSE #38
	23	2-8-0	C-5	Pittsburgh	46939	1910 — ex LS&I 2nd #9
	24	2-8-0	?	Pittsburgh	46946	1910 — ex MMSE #40
	25	2-8-0	SC-3/SC-5	Pittsburgh	46940	1910 — ex LS&I 2nd #10
	26	2-8-0	SC-3	Brooks	26554	1902 — ex BR&P #251
	27	2-8-0	C-2	Baldwin	25725	1905 — ex LS&I #15
	28	2-8-0	C-2	Baldwin	25782	1905 — ex LS&I #16
	29	2-8-0	SC-2	Pittsburgh	39637	1906 — ex LS&I #14
	30-31	2-8-0	SC-1	Baldwin	43105-6	1916 — ex LS&I 18-19
2nd	30-31	2-8-0	SC-2	Schenectady	52836-7	1913 — ex CR&I 1-2
	32	2-8-0	SC-1	Baldwin	43107	1916 — ex LS&I #20
	33	2-8-0	SC-1	Baldwin	43108	1916 — ex MMSE 2nd #44
	34-35	2-8-0	SC-1	Baldwin	43105-6	1916 — ex LS&I 30-31
	36	2-10-2	SF-1	Baldwin	52672	1919 — ex HV #140
	37	2-10-2	SF-1	Baldwin	52674	1919 — ex HV #142
	38	2-10-2	SF-1	Baldwin	52705	1919 — ex HV #144

Notes

No. 1 was sold to the Southern Iron & Equipment Co. in 1924 in exchange for #26.

2 cylinders reduced to 17½"—locomotive scrapped in 1929.

3 sold to Detroit, Caro & Sandusky R. R. in 1942.

4 sold to Brunswick Lbr. Co. in 1928.

5 sold to Cleveland Cliffs Iron Co., Furnace Dep't in 1932.
6 became 2nd #2 in 1930, scrapped in 1931.
7 became 2nd #4 in 1930, scrapped in 1931.
8 sold to Cleveland Cliffs Iron Co., Land Dep't in 1934.
9 same as #8 but sold in 1937.
10 new 44" drivers applied, reclassified C-6, scrapped in 1953.
11 same as #10.
12 scrapped in 1953.
13 sold to Manistique & Lake Superior R. R. in 1948, road #2390, destroyed in Manistique roundhouse fire in 1952.
14 reclassified MK-2 in 1930—stored.
15 same as #14.
16 superheated and reclassified SC-6—stored.
17 new 20½" cylinder applied—stored.
2nd 16-17 ex Cambria & Indiana 5-6—purchased from Peckham Engineering Co. in 1930. #16 scrapped in 1955, #17 in 1954.
18 rebuilt in 1930, 22x28" 50" 189360, Class SC-4, active.
19-24 all rebuilt like #18 in 1934, 1929, 1930, 1929, 1928 and 1930 respectively. All are active save Nos. 22-23 which are stored.
25 superheated, 21" cylinders, scrapped in 1956.
26 purchased from Southern Iron & Equipment Co. in 1924, ex Buffalo, Rochester & Pittsburgh Ry. #251, reclassified SC-5, scrapped in 1951.
27 reclassified C-3, cylinders reduced to 22", scrapped 1956. Cracked bell replaced.
28 same as #27 except the bell did not crack.
29 rebuilt in 1925, new class SC-3, 23" cylinders, in 1935 received tender booster from #32.
30-31 renumbered 34-35 in 1925—#30 active and #31 in storage.
2nd 30-31 purchased from General Equipment Co. in 1925, ex Chicago River & Indiana Nos. 1-2. #30 scrapped in 1956, #31 stored.
32 tender booster applied about 1925 and subsequently transferred to #29. Active.
33 tender booster applied about 1925—stored.
36-38 purchased from Hocking Valley R. R. in 1930 and were originally built for the Lehigh Valley under Nos. 4070, 4072 and 4074. All scrapped in 1955, 1953 and 1954 respectively.

Dimensions of Locomotives

1	Shay	?	(3)17x18"	46"	186000	—#	62500#	T. E.
2	4-4-0	E-1	18x26"	55"	63000*	160#	18553#	
3	4-4-0	E	18x26"	55"	63000*	160#	21000#	
4	2-8-0	C-7	18x24"	44"	119000*	180#	?	
5- 7	0-6-0	SW	19x24"	44"	107000	—	26512#	
8- 9	2-8-0	C-5	20x26"	50"	142000	—	31820#	
10	2-8-0	C-5	20x28"	50"	148000	180#	30600#	
11-13	2-8-0	C-7	20x28"	50"	148000	180#	30600#	
	2-8-0	C-6	20x28"	44"	148000	180#	34200#	
14-15	2-8-2	MK-1	20x28"	44"	178000	190#	35224#	
16-17	2-8-0	SC-5	20x28"	50"	168500	200#	34000#	
18-24	2-8-0	C-5	20½x28"	48"	174500	200#	36000#	
16-17	2-8-2	MK-1	22x28"	44"	231900	200#	45000#	
25	2-8-0	SC-3			reclassified SC-5 same as Nos. 18-24			
26	2-8-0	SC-3	21x28"	50"	184000	200#	38200#	
27-28	2-8-0	C-2	22½x30"	50"	198000	200#	44500#	
29	2-8-0	SC-2	22½x30"	50"	198000	200#	44500#	
30-33	2-8-0	SC-1	26x30"	50"	270000	200#	55900#	
34-35	2-8-0	SC-2	25x32"	54"	244500	190#	51000#	
36-38	2-10-2	SF-1	29x32"	63"	374000	205#	74435#	

*Weight on drivers only.

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The Strange Case of Robert Schuyler

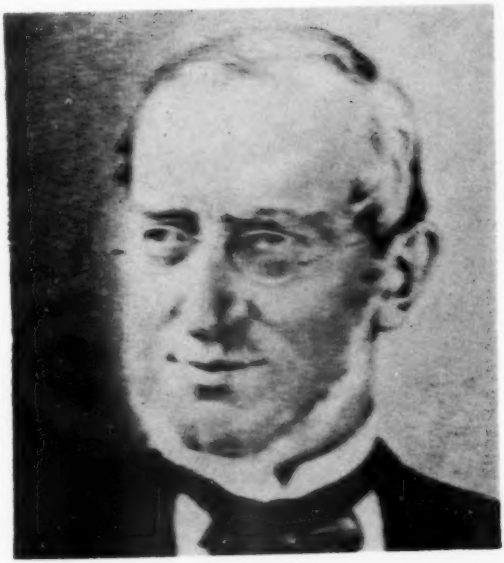
By Sidney Withington

One of the dramatic chapters in New England railroad history is that resulting from the activities of Robert Schuyler, the first president of the New York & New Haven Railroad Company. Mr. Schuyler had been chosen president because the men who organized the company desired that the head of their project should be a man who would inspire the utmost confidence in the new venture among the investing public, and Mr. Schuyler, an attorney, civil engineer and financier of New York, seemed to be the ideal man for the job. He was a graduate of Harvard, class of 1817, (he was chosen to take part at Commencement in a "colloquial Discussion on the Good and Bad Effects of Emulation") he held a Master's degree from Harvard, and studied law in New York. He was a member of one of the most aristocratic families of the country. Grandson of General Philip Schuyler and a nephew of Alexander Hamilton, he represented the last word in respectability and also in financial responsibility. "A member of the church and a scion of our hereditary nobility," said *Harper's Weekly*. He was also a very successful broker in New York, with his brother in the firm of R. & G. L. Schuyler. His reputation for probity and honor was unquestioned.

He was appointed president of the railroad on May 19th, 1846, and held office until his resignation and complete disappearance from the scene of his activities on July 3rd, 1854. During that period he had the highest reputation for intelligence, and was particularly distinguished for his experience and skill in the construction and management of railroads. Abundant evidence of this is found in the eagerness with which his services and advice were sought, and the numerous lucrative and responsible offices he held. Among other offices he was president (in addition to the N. Y. & N. H. Railroad) of the Illinois Central, the New York & Harlem, and the Vermont Valley Railroads, and secretary or transfer agent or treasurer of many others. He had been called "America's first railroad king!"

As an example of his reputation at that time, the *Scientific American* commented, on January 4, 1851, "The stock (of the N. Y. & N. H. R. R.) is good and must always be growing, especially under such able management as that of Supt. Robert Schuyler" . . . and in July of that year it said ". . . It must be a matter of congratulation to the stockholders that they have such a man at the head as Robert Schuyler, Esq., who, as a man of judgment and practical experience as a railroad man, is second to none in the country."

The organizers of the New Haven Railroad included, among others, Joseph E. Sheffield, whose name is perpetuated in Yale's Sheffield Scientific School, and Anson Greene Phelps, whose family, in 1840, named Connecticut's town of Ansonia, and founded Phelps Dodge. They had employed Alexander C. Twining, uncle of President A. T. Hadley, to make the survey of the route between New York and New Haven.



(From "Main Line of Mid-America") (By C. J. Corliss)
Robert Schuyler.

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The railroad was chartered by the Connecticut Legislature in 1844, with a capital stock of $2,000,000, (which might be increased by action of the Directors to $3,000,000) divided into shares of $100 each. The nine directors were empowered to "locate, construct, and finally complete a single, double, or treble way" from some suitable point in the city of New Haven to the city of Bridgeport, and thence westerly to the west line of the State towards the city of New York. By act of the New York State Legislature, passed May 11, 1846, authority was given them to extend the road from the Connecticut boundary to a point of junction with the New York & Harlem R. R. The New York legislation was approved by the Connecticut Legislature, on June 3rd, 1846.

The application for authority from the New York Legislature encountered some difficulty, but this was finally straightened out by the influence of George L. Schuyler, Robert's brother and business partner, and Alexander Hamilton, Jr., their cousin.

Construction was started in 1847 and the road opened (after an initial run of a train from New Haven to New York, in December, 1848) in January, 1849. In October, 1849, the road was formally turned over by the contractors to the Board of Directors.

There apparently had been questions raised by some stockholders regarding the management of the company and, on August 22, 1849, a stockholders committee under the chairmanship of one Shepard Knapp undertook an investigation of the company affairs. That committee reported ". . . a rigid scrutiny, not only into the present condition of the company, but also into all matters interesting to the stockholders, from its commencement to the present time. Its books and accounts were submitted by the Directors and officers and a careful and attentive examination made by the committee . . ." Nothing however was "elicited in these examinations that substantiated or rendered probable the charges made . . . implied or specified . . ." The report continued, "In no case can the committee trace in the most remote manner any personal interest on the part of the officers or directors in any transaction connected with the . . . management of the Road . . ." They said further, "the committee cannot but believe that had the stockholders passed with them through the laborious and searching investigation they would cordially unite in awarding to the officers and directors the credit they so truly deserve."

On the basis of this report the stockholders unanimously "Resolved . . . that the stockholders have entire confidence in the President and Board of Directors, believing them to have executed the important trust committed to them, not only with zeal and fidelity, but with high intelligence."

That was in November, 1849!

After this, things apparently progressed fairly smoothly with the new railroad until 1854, when Morris Ketcham, who had been Treasurer until 1853, and was still a Director, noticed that there was considerable activity in the Stock Market in the stock of the railroad. The *New York Herald*, on July 6th, carried this item, "On Monday, the 3rd instant, Mr. Morris Ketcham was visited by several gentlemen who were desirous

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of getting his opinion relative to the present and prospective value of the stock of the N. Y. & N. H. R. R. Co. The low price current ($75.00) and the rapidity with which the prices have run down created some curiosity on the part of Mr. Ketcham to know who was selling the stock at such depreciation. To satisfy that curiosity he went to the transfer office and looked over the transfer books and stock accounts . . . The answers to questions he put to the clerk aroused his suspicions more than anything else and he immediately took possession of the books and carried them to his residence . . ." The Directors tried to get in touch with Mr. Schuyler but were told he was not available as he was suffering from a "dangerous hemorrhage of the lungs" and could not be disturbed. However, the *New York Herald* on July 6th said, "Mr. Schuyler has not been confined to his house by sickness lately. The statements about an attack of hemorrhage of the lungs were inventions. He has gone to Canada or some other cool place. New York was too hot to hold him."

Mr. Schuyler's lawyer handed the Directors a letter in which Schuyler had written, dated New York, July 3rd, 1854, as follows:—

"Gentlemen:—I beg to resign my seat in the Board of Directors of the New York & New Haven R. R. Company, and also the office of President, and the appointment of Transfer Agent of the stock of the company. Your attention to the stock ledgers of your Company is essential as you will find there is much that is wrong. The details can be furnished you with precision though I cannot do so. In reference to the connections of these transactions with R. and G. L. Schuyler, I wish to make my solemn assurance that in no way has my brother been concerned with them, nor has he ever known or been informed of them; in fact, there was no mode in which he could obtain information except from myself, and I have ever been quite as careful to keep him in ignorance as any other person. He could not even have ascertained the facts from our books and accounts, and to those of the New Haven Company in my charge he had no access.

Your Obedient Servant,

Robert Schuyler.

To the Directors of the N. Y. & N. H. R. R."

The Directors at the time of the discovery of Schuyler's irregularities were:—Robert Schuyler, Morris Ketcham, Jonathan Sturges, Anson G. Phelps and Henry S. Sanford, all of New York, Wm. P. Burrall, of Bridgeport, Wm. W. Boardman, of New Haven, and John E. Thayer, of Boston.

It was decided best for the old Board to disappear from the picture, and the following became members of the Board in 1856:—Justus R. Buckley, President, George N. Miller, Wm. B. Astor, A. R. Van Nest, and G. B. Carhart, all of New York, Dennis Kimberley and Nathaniel A. Bacon, both of New Haven, John W. Leeds, of Stamford, and Wm. L. Lyon, of Greenwich.

It was said that brother George, Robert's associate in the brokerage firm and President of the New York & Harlem R. R., did not know anything about Robert's method of financing and, in the minds of all his associates, he was apparently cleared of all complicity, though it is hard to imagine he did not have some suspicious thoughts, since his firm was so deeply involved. The firm of R. and G. L. Schuyler became bankrupt after Robert's departure from the stage.

Until then it seems apparent that not the slightest suspicion had been entertained of Schuyler's integrity, although the *Herald* of July 6th, 1854, had this to say: "Soon after the election of Directors held in New Haven, we received an anonymous letter from an individual in that city requesting us to call the attention of the Board of Directors to the acts of their transfer agent, who was president of the company. We treated it as we do all anonymous letters containing charges against individuals and let the matter drop, but the writer was evidently posted up in some way . . ."

Schuyler had issued all the stock which the railroad was authorized by New York and Connecticut to sell, and then kept on selling the stock for his own private account. It was said at first that this probably began when payment of dividends was arrested by a tragic accident in 1853, when a Boston-bound train, laden with Boston physicians, had run off an open drawbridge at South Norwalk, resulting in 52 fatalities.

As a matter of fact, however, it appears that Schuyler's extra-legal stock issues actually started in 1848, when the authorized outstanding stock was limited to $2,000,000. Subsequent increase of the stock to $3,000,000 automatically saved the situation for him, and thus kept secret for some years his device for making money. The Directors were "struck with profound astonishment" and notified the newspapers for July 5th as follows:—

"New York & New Haven R. R. Company. At a meeting of the Board of Directors of this Company holden this morning, it has been made apparent on a hasty examination of the stock books, which have been kept by the late President, Robert Schuyler, as Transfer Agent in New York, that by means of false entries, erasures, and other similar practices, an issue of illegal and fraudulent stock has been made within a few months past to the amount, as nearly as can be ascertained, of nearly twenty thousand shares, or two million dollars. A rigid examination will immediately be made, by order of the Directors, of the books and papers, and the result, when accurately ascertained, will be made public.

"In the meantime, the transfer books are closed by order of this Board.

"By order of the Board of Directors.

W. W. Boardman, President pro tem."

The company, being a Connecticut corporation, necessarily had its principal offices in that state. The principal part of its business, however, was in New York City, so practically all of its executive offices

were there. Its principal stock account was kept there. It is apparent that the Directors considered that any interference or curiosity on their part would have implied suspicion of the President's "entire unfitness for any position of trust," and his irregularity thus, as has been said, "struck them with profound astonishment."

They immediately sought legal advice as to the duty devolving upon them, and appointed a committee to examine the stock accounts, to ascertain exactly the amount of stock outstanding, and how much stock had been fraudulently issued. They found that, in addition to the 30,000 shares, or $3,000,000 of genuine capital, Schuyler had issued certificates purporting to be legal amounting to 19,540 shares, between October 18th, 1853, and July 3rd, 1854, and this at $100 per share amounted to $1,954,000.

A special meeting of the stockholders was called by the Directors to ask for their advice and assistance. The question immediately arose as to who the stockholders were. Presumably none but the purchasers of the authorized 30,000 shares, or their successors, were the legal owners of the company. This meant unscrambling the stock transfer records, for both the legal and the illegal stock had been freely bought and sold and used as collateral for loans. This unscrambling was obviously an exceedingly complicated job.

In spite of such complications the Directors accomplished what they considered was a separation of the good from the bad stock and, on September 21st, 1854, at a Stockholders meeting, it was resolved that it was the sense of the meeting that the Directors resign, and that a committee be appointed to recommend a course that would protect the genuine stock. It was also voted to offer a reward of $5,000 for the delivery to the proper authorities of Robert Schuyler, who had been seen in Canada apparently in good health and presumably headed for Europe.

The new Directors retained counsel to advise them and, needless to say, so did the unfortunate investors in the spurious stock. The litigation which resulted extended over a dozen years, and involved many different courts in New York and Connecticut.

Attorneys W. C. Noyes and George Wood were retained by the Railroad, and with them was associated Roger S. Baldwin, former Governor of Connecticut and U. S. Senator. These counsel reported, on August 9th, 1854, that, in their opinion, no power short of the Connecticut Legislature, with the assent of the stockholders, could increase the capital stock, and that the fraudulent acts of an officer so greatly transcending any power conferred upon him, or which the Directors of the Company could confer on him, did not bind or implicate the Company in any way.

They gave as their opinion that "If the Board of Directors had originally issued a like excessive number of shares, their act in so doing would have been illegal and void; and these can stand upon no better ground. Indeed the holders of these are in much worse condition than the holders of such shares would have been."

They continued, "This Board of Directors could not by any vote or resolution whatever, increase the stock beyond three millions . . . It

follows as a necessary consequence that no subordinate agent of the Company could do what the Board of Directors itself could not . . . This unauthorized and illegal act of the Transfer Agent . . . does not create any debt or legal obligation against the Company . . . A corporation is never responsible for the unauthorized acts of its officers transcending their corporate powers . . .''

The Honorable Roger S. Baldwin also had this to say on December 1st, 1855, ''I am led to the conclusion that (1) the entire stock of the Corporation belongs to the owners of the 30,000 shares originally subscribed and allotted pursuant to the charter; and that the rights of such holders to their proportional shares cannot be impaired by any act of the Company or its agents. (2) That no contract has been made or attempted to be made in behalf of the Corporation by Robert Schuyler as its ostensible agent for the sale of non-existent shares. (3) That the fraudulent and wilfull tortious acts of Schuyler *colore officii* for his own private purposes were not within the scope of any authority conferred, or which could have been conferred, on him as an officer or agent of the Company and are not legally imputable to the Corporation as its acts. (4) Consequently that neither the persons who originally received their certificates nor those to whom they were afterwards transferred have any claim for damages against the Corporation.''

The opinions of Messrs. Baldwin, Noyes and Wood were not in agreement with those of other spokesmen of the period retained by the opposition. Mr. Greene C. Bronson, on September 28th, 1854, reviewing the case, said, ''It is true that Schuyler had no commission to do a wrong, but it is also true that the Company entrusted him with the transaction of business in which he might act improperly and virtually said to all that he was a person with whom they might safely deal. . . . The addition of twenty thousand shares reduced the intrinsic value of each share to three-fifths of what it was before, but added nothing to the capital stock.'' And he concluded, ''Those who have in the usual way obtained certificates in their own names are stockholders in the Company and are entitled to be treated as such for all purposes. In this class I include those who obtained certificates since, as well as those who obtained them at the time of the purchase or hypothecation . . . I am fully of the opinion that the Company is answerable in some form for the acts of Schuyler.''

Among many others, Charles P. Kirkland, on October 14th, 1854, discussed the case at some length. He pointed out the impracticability of determining which of the outstanding certificates were for over-issues. ''For instance,'' he said, ''if A, owning fifty shares, admitted to be properly issued, and fifty, alleged to be improperly issued, sells the whole lot to B, to whom one certificate for the one hundred shares is delivered, B sells fifty shares to C, (and a certificate is issued to him) and fifty to D, (to whom also a certificate is issued) does C or D hold the stock lawfully issued? A satisfactory answer to this question would require, I apprehend, a more 'scientific bookkeeper' than the world has yet produced, or will be produced, so long as the intellect of man remains finite.''

He argued that ''If the ground assumed by the Company is successfully maintained it would materially injure the value of hundreds of

millions of stock. No man could be safe in the possession of this species of property." And concluded that the "New Haven Railroad Company is liable to *bona fide* holders of stock over-issued by Robert Schuyler as their Transfer Agent" and that "they are to be compensated by the Company for the fraud practiced on them, by the payment of such sums as will fully indemnify them."

Charles O'Connor gave his opinion that "The Directors may refuse to recognize as stock all shares which can be clearly and certainly traced to an origin in the over-issue, and that all shares which cannot be so traced must be recognized, and that the Company is bound to pay all *bona fide* holders of shares thus rejected the *full* amount of their loss." He continued, "It was an act of negligence by the Corporation. If I am right in my conclusion that the Company will be liable for damages to the owners of the rejected shares, the other share-holders will suffer a positive pecuniary loss . . . and would greatly promote their own interests by recognizing the over-issue."

Daniel Lord, on October 2nd, 1854, reasoned that, while it is true that no corporation authorizes its officers to certify falsehoods or to commit frauds, it is bound by the act of its officers who abuse power. He advised that the Railroad Company was liable to those who have, in good faith, lost by giving credit to false certificates.

F. F. Marbury wrote in the *New York Journal of Commerce*, August 1st, 1854, that, if Schuyler's certificates made in the course of his agency prove to be false, law as well as justice would seem to require that the Company which placed him in the position and put it in his power to do this great wrong should suffer, rather than innocent parties who confided in his official acts." He continued that if it is clear that either the Company or the holders of spurious stock must suffer, "the inquiry will be . . . when one or two innocent persons must suffer by fraud or negligence of a third, which of the two gave the credit? No railroad company," said he, "is empowered or authorized to inflict injuries upon persons or property. The N. Y. & N. H. R. R. Company had no right under its charter to run its express train into the Norwalk River . . . shall the Company escape payment of damages upon the plea that the conductor was neglgent or reckless, which the Charter did not authorize him to be?"

Messrs. Hungerford and Cone, eminent Hartford lawyers, also retained by several holders of illegal stock, said, on November 1st, 1854, that they had come to the opinion "with much confidence" that the Railroad Company was liable for the excessive issue and that "unless the railroad is liable there is no safety in trade."

The *American Railroad Journal*, which had at times been exceedingly critical of the management of the Railroad, had this to say in its issue of July 15th, 1854. "As Transfer Agent of the New York & New Haven R. R., Mr. Schuyler had a duty to perform simply ministerial in its character. He had no authority to raise, nor did he pretend he was raising, money for the Company (when he put up fraudulent stock as collateral). The lenders did not suppose they were dealing with the Company through Schuyler as *agent*. They were dealing with Schuyler

as *principal*. What he was offering was simply *stolen* property . . . It appears to us that the holders of the fraudulent issue have no remedy save against Schuyler. . . . The authorized capital stock is limited to $3,000,000 and the whole amount has been issued prior to his frauds. The fact releases the Company from all liability on account of stock issues."

One of the earliest among a large number of court cases was one in which the Railroad tried to persuade the courts to lump all of the holders of spurious stock in one category and so entered suit against Schuyler and others asking that the spurious stock be declared void and illegal and surrendered for cancellation, and that all those who had sued the Railroad be stayed and those who had not yet entered suit be enjoined from suing, and that all such suits be consolidated.

Judge Cowles, the only judge in the District who was not disqualified by interest or by relationship to some of the parties involved, decided the Company could not join all holders of spurious stock in one action and restrain them from individually proceeding against the Company because the situation was not the same in all cases. He ruled there were eight categories of claimants, among which were the following:—the firm of R. & G. L. Schuyler itself held a large amount of stock; some individuals took stock from Schuyler with knowledge of fraud; some held stock based on usurious contracts with Schuyler; some had stock hypothecated as security; some held good stock and surrendered it to Schuyler, who re-issued it; some held certificates in part genuine and in part spurious; and, finally, some were entirely innocent stockholders.

Judge Cowles said that it was unfair for the courts to instruct the holders of spurious stock to submit it for cancellation and then force them to sue the Company for damages. Since he could not find a common ground for action by the defendants, the holders of false stock certificates, he admitted that "No aid which the Court could furnish can relieve the case from . . . perplexities, embarrassments and delays which must necessarily attend every attempt to urge it forward, while, on the other hand, the change by frequent deaths and other accidents incident to the case with the necessity of numerous revivors would enable any party, should interest prompt, to make the litigation almost interminable." He said, "I had hoped to discover there was a single suit embracing all parties" and "these questions might be speedily solved." He sustained the demurrer and dissolved the injunction against suing the Railroad by individuals.

One of the important suits against the Railroad was brought by the Mechanics Bank. This case was originally heard in the special term of the Superior Court in the city of New York, by Judge Bosworth, and, on February 22nd, 1855, he found that the stock in question was "not issued for any lawful purpose whatever, but was a fraud on the part of Schuyler to raise money for his own private purposes," and that the Railroad was liable "not for the stock, which is worth nothing, but for the damage from the fraudulent acts of Schuyler." The Railroad appealed the case to the General Term of the Court and the judgment against it was affirmed.

The General Term of the Superior Court heard the case in a full bench; Judges Slosson, Hoffman, Bosworth, Oakley and Campbell. (Because he was an interested party Judge Duer declined to sit). Judge Slosson reported for the Court on June 30th, 1855. He agreed with the Special Session decision. He said that "A case cannot be conceived in which it could be more difficult for the parties dealing with the agent to discover a fraud." Judge Hoffman, of the same Court, said the only measure of damage which the case . . . admits of, is the market value. Judge Oakley said, "I might almost say without any disrespect to the counsel that it has been too much argued. The judgment at the Special Term should be affirmed." Judge Campbell was the only one of the Court who disagreed. He said, "Differing with my brethren . . . I shall proceed not without diffidence, but at the same time with a strong conviction of their correctness to state my conclusions . . . The certificate had a genuine name of the transfer agent affixed, but it was nevertheless a cheat and a lie . . . The plaintiff is not entitled to recover and the judgment of the special term should be reversed." However, since the majority of the Court was of a contrary opinion, the judgment was affirmed and the Company thus held liable in this Court.

The Railroad then carried the case up to the New York Court of Appeals. Judge G. F. Comstock, in the March term of 1856, with the unanimous concurrence of all six judges, announced, on June 17th, 1856, the decision that the Railroad was not liable, thus reversing the judgments of the lower courts. They ruled that the Stockholders were "in no wise connected with the misconduct of their agent, nor have they benefitted by it" also that they "had yet to discover the principle on which the genuine stockholders can be made liable to any form for power exercised by their agents for their own individual benefit."

It was further ruled that "the certificate under discussion was void because it was fraudulently issued and he (Schuyler) paid nothing for it. It was also void because issued by an agent without authority, the want of authority was known to him. It was void because the stock it professed to represent had no existence and could not exist under the Charter.

The reversal meant a new trial of the Mechanics Bank suit, and a number of suits which had commenced in the court were discontinued, although there were still cases pending in the Supreme Court of New York. Several suits were brought against the Railroad in the U. S. Courts, but were dismissed for want of jurisdiction.

The Directors tried to declare a dividend in February, 1857, but were served with injunctions to prevent them. These injunctions were dissolved, but other actions were commenced so the payment of the dividends was prevented. Meanwhile, the Company again brought a bill in equity against all of the holders of spurious stock certificates in an endeavor to settle the rights and duties of those interested in one suit, and to determine just which stock was spurious and which was legal stock. This suit was "unexpectedly and strenuously" resisted by the defendants "upon technical grounds," but, in 1858, was finally argued before the Court of Appeals, which then decided in favor of the Railroad.

The *Railroad Journal*, still very critical of the Railroad management in many respects, had this further to say, "Had the fraudulent issues been declared valid, the effect of such a decision would have been to shift the loss from one party to another. This is a case which is just as broad as it is long. . . . In the creation of new stock Mr. Schuyler did not assume to act as agent for the company. He assumed an authority which the company could not give. The money received did not go to the company. There was no privity between the two. How then can the company be held? Certainly not upon any legal hypothesis nor in the present case upon equitable grounds."

The Railroad now brought suit against Schuyler and 322 other holders of spurious stock, now definitely listed, in the New York Supreme Court. Judge D. P. Ingraham, who had heard the case in Special Term, reviewed the case and, on September 18th, 1860, announced his decision that the "excessive transfers of stock . . . and the certificates representing the same are, and were, and still are illegal and void and they do not . . . represent or include any of the real shares of stock of the said Company or confer upon any of the claimants, or holders, or owners thereof any rights or privileges as stockholders . . . or impose on said Company any legal or equitable claim or duty whatever . . ." It was then ordered that the defendants should produce to the clerk of the court the certificates by them held, to be endorsed, "cancelled by judgment of eighteenth September, A. D., 1860."

Further, the holders of the spurious stock were "enjoined and restrained" from setting up or claiming in any way, manner or form . . ." that their certificates conferred upon them any rights or privileges as stockholders and they were also enjoined from bringing any suit whatever against the Company on account of their stock!

The Judge did rule, however, that this restraint did not prevent the defendants from making any claims for damages . . . since he found that the plaintiffs carelessly, negligently and improperly conducted themselves in relation to the transfer of stock, and held that the Company was liable to damages and the defendants were entitled to recover these damages.

The separation of good from bad stock was finally completed and the "true stockholders" were defined as a result of Judge Ingraham's decision. On this basis a number of suits were brought against the Company both in New York and Connecticut. The principles involved in these suits were embraced in a suit brought in the Supreme Court of New York, by John O. Woodruff and Robert M. Henning, and decided by Judge Woodruff at a Special Term, in January, 1860, in favor of the Railroad! The Judge ruled that, if the principles declared in the Mechanics Bank case by the Court of Appeals of New York were applied, he could not "avoid the conclusion that the defendants should have judgment," but he did rule that the plaintiffs could "resort to the Court of Appeals itself, if the plaintiffs believe that the circumstances . . . will in the judgment of that tribunal" entitle them to recover. Although he decided in favor of the Railroad he ruled that the Railroad must pay the costs of the trial.

The plaintiffs took an appeal to the General Term from Judge Woodruff's decision, in March, 1861, and, in April, 1862, the three judges of that court affirmed the Woodruff decision, Judge Robertson delivering the opinion.

Although many of the court decisions had been in favor of the Railroad up to that time, the Board of Directors, on October 24th, 1863, apparently saw some handwriting on their walls and "in a spirit of conciliation and compromise," commenced considering the propriety of a settlement of the fraudulent stock cases "and thus, if possible, to withdraw the Company from a litigation" which had already existed some ten years, with a prospect of many years further continuance. They thus "formally resolved that for the sole purpose of settling and compromising the claims" and "not admitting any legal liability thereon" they were ready to issue and exchange one new share for two spurious shares to be received "in full settlement of all claims for any supposed negligence and breach of duty." They contemplated this would involve not exceeding $1,000,000 increased capital.

In 1865, the Directors reported that "Appeals have been taken from the Supreme Court to the Court of Appeals in all adjudicated cases . . . and it is probable will be heard at an early day."

In 1866 the blow fell. The Directors said that "In December the Court rendered a decision against the Company in all cases before it. The aggregate up to this period on account of those fraudts amounts to $1,599,202.70" and it was determined "For the purpose of paying the judgments confirmed by the Court of Appeals, the most equitable plan appeared to be . . . the issue of new shares and pulling up the capital to Five Millions of Dollars." This decision by the New York Court of Appeals against the Company was handed down by Judge Davis in a picturesque, 59-page analysis, in which he pointed out that the Directors had "handed over to Schuyler the substance of all their authority, and then for nearly seven years laid down to sleep in supine indifference at his feet . . . Aroused by the shock of the calamity which their folly had induced, are they now to look calmly over the wreck with no answer to its innocent victims but that of Macbeth to the ghost of Banquo?" [Thou canst not say I did it!]

He further gave as his opinion that "the parties were dealing all the while in the actual and legitimate stock of the Company and the agent was called upon to do an act within the exact scope of his authority." He said an engineer is strictly prohibited from crossing a drawbridge without seeing that signals of safety are given. This is a plain breech of duty and excess of power, but on that "exact ground the Corporation are liable to every party injured." And still further, "I cannot subscribe to the idea that the duties of the plaintiffs [the Railroad] in respect to their stock were limited to themselves and existing shareholders. They extended also to the commercial community."

In 1867 it was reported that "All demands upon the Company on account of the fraud" had been extinguished, "the total loss $1,772,868.69."

Schuyler developed other nefarious schemes which posed other problems for the New Haven and some of his other roads, but these were so simple they were settled without any hesitation by the Company. For instance, he maintained three sets of books in three different offices and kept by different clerks, none of whom knew what the others were doing, so that Schuyler could manipulate the accounts as he saw fit for his own personal profit. He would buy locomotives and take the money from the Railroad accounts in cash, giving the manufacturers notes signed by him as President. In a like manner he paid the damage claims arising from the South Norwalk accident.

At the Stockholders meeting in 1855, it was announced that "In addition to the fraudulent issues of stock, Mr. Schuyler embezzled the funds of the Company to the amount of $137,527.98. One of the methods of defrauding the Company was the following:—The construction accounts were kept in a set of books under Schuyler's exclusive control and were never seen previous to Mr. Schuyler's flight, by the Treasurer of the Company . . . Schuyler was, for a long time, in the habit of borrowing for the excess cost of the road (beyond $3,000,000). For the sums so borrowed, he gave receipts signed by 'Robert Schuyler, Pres't, N. Y. & N. H. R. R. A.' A portion of these loans were paid by issuing bonds . . . Some of these loans were made by R. & G. L. Schuyler. Schuyler took some of the receipts issued to his firm to the Treasurer of the Company and received payment therefor. He then had the firm credited in the construction account books for the identical sums and payment made a *second* time by the issue of the Company's bonds. Mr. Schuyler was also accustomed to use the money delivered him in payment of debts, and to give such debts the note of the firm. . . ."

An item in the *Tribune*, of July 7th, 1855, announced the receipt of a letter from Robert Schuyler "by the last steamer. The only communication he has ever addressed to the public upon the subject of his affairs, and the only positive notice of his existence which the public have had since his disappearance . . ." It read

"To the Editor of the N. Y. *Tribune*,

Sir:—The *Tribune* of May 11th last contains a report of the proceedings of the Annual Meeting of the Stockholders . . . It appears that the President stated that the Company had sustained a total cash loss of capital of $137,527, by the various operations . . . ascribed to me. If I had the strength to do so I should examine the details of their statements and show you, as I believe, that none of these are founded on facts . . . and that no loss of cash capital has been the consequence of any act of mine . . .

"I hope you will publish this statement which I have prepared with great difficulty—in the greatest debility of body and broken spirit, but with clear recollections.

Robert Schuyler."

One curious quirk in his philosophy appeared in his married life. For what were said to have been "family and social" reasons, he and his wife occupied separate houses in New York, and his friends and business associates had always understood he was a bachelor. His wife and children were apparently on friendly terms with him and, so far as is known, he had no girl friends!

The *New York Post* carried a somewhat spicy reference in its issue of July 6th, 1854, reading in part, "As a matter of course, since the discovery of this great fraud, everything pertaining to the past history of Mr. Robert Schuyler is seized upon with great avidity. The matter of his secret marriage is much discussed. This was unknown to a majority of people . . . Mr. Schuyler had been living as a bachelor and was supposed to be a bachelor until a few months since; it was discovered that he had been privately married many years previous, and had a family of children one or two of whom had grown up and got married. They had gone under the name of Spicer. Mr. Schuyler's explanation was that he saw a pretty girl with whom he fell in love; she was poor and he knew his family would object to the match; so he married her privately and has never divulged the secret . . ."

Mrs. Schuyler resented this and the next day wrote a somewhat pathetic letter to the *Tribune* in reference to the *Post's* comment.

> "Sir:—I beg a small space in your columns to refute a story that appeared in last evening's *Post* relative to the private life and marriage of Mr. Robert Schuyler. I will not speak of indelicacy and ruthlessness of the hand that, at this critical juncture, would tear aside the sacred veil of domestic privacy, for every sensitive heart will at once perceive the truth; nor would I here undertake to defend one too ill to defend himself. To time and to a just God do I commit the vindication of my husband's honor.
>
> "But, as other stories may spring from that same source that originated the marriage romance, I would here pronounce it all a fabrication.
>
> "The 'poor girl's' family was as respectable and wealthy as Mr. Schuyler's own and they were already connected by marriage.
>
> "The name of Spicer, by which the family was so long known, was the name of a near and dear relative who bequeathed it to the 'poor girl,' with the small property which alone remains to provide for the wants of her children and dying husband.
>
> "Will the *Evening Post* copy this communication in correction of its false statement?
>
> (signed) Mrs. Robert Schuyler."
>
> West 22nd Street.

Mrs. Schuyler apparently was Miss Lucinda Wood. The Schuylers are listed in the family genealogy as having had six children, Robert,

Julia, Louisa, Katherine, George, and William. Robert appears in the New York City Directory of 1823 as an attorney living with his parents. After several moves the Robert Schuylers settled at 13 Laight Street, at which time brother George came to live with them. In 1844, Robert changed his listing in the directory to "Engineer." In 1854, his home was at 85 Broadway. None of these New York City addresses corresponds to that given by his wife on West 22nd Street.

Schuyler was evidently joined by his family when he went abroad, for the *Tribune*, for December 20th, 1855, carried this item under the heading "DEATH OF ROBERT SCHUYLER," and the following extract from a private letter from Paris.

"Robert Schuyler died about the middle of last month in the vicinity of Geneva, where he resided for some time under the strictest incognito with his family. His colossal frauds had not enriched him. He received from America the means of his subsistence. His place of residence would have been known long ago but for the interest which many persons occupying very important position in the management of several railroads, especially the New Haven road, exerted to keep it in the shade. Since he absconded, his health has steadily declined and he died literally of a broken heart. Many distinguished financiers of New York will not be sorry to hear of his death. He leaves, I am told, a large collection of important papers which will add—for they will be published—a curious chapter to the history of your New World speculations. His body has been temporarily embalmed and will probably be sent to America."

There was still some mystery, however, regarding his death for, in 1857, S. D. Bradford, a classmate, wrote to the Librarian at Harvard, "I have no positive information or knowledge that Schuyler is dead. I am frequently in New York with the Directors of the New York & New Haven Railway and have often put to them this question 'Is Schuyler dead?' and no one seemed to doubt it. It is admitted there came a coffin from Harves said to contain his body, and that a funeral took place in New York, but I could not find that anybody saw the body or identified it. It may have been a sham . . ."

Later he wrote, "It was stated in the newspapers about the time of his death that he died at Nice. I was surprised at this as Nice is a place so much frequented by Americans and English, and this fact weakens my faith in his death more than anything else . . . (Judge Roosevelt thinks he secured $400,000 to his relatives before he made his escape . . .)"

Brother George must have prospered even after Robert's disappearance. He was one of the syndicate which built and raced the schooner yacht "America," and brought back the famous cup, which he gave to the New York Yacht Club, when he became the last surviving member of the syndicate which captured it. He married, in sequence, two Hamilton girls, both grand-daughters of Alexander Hamilton and, therefore, his cousins, and had several children. He was a founder, in 1844, of the New York Yacht Club, and owned the schooner yacht "Dream."

One of the chief thorns in the Schuyler fraud episode had been Cornelius Vanderbilt, who had been a close associate of Schuyler and

who in fact had offered to rescue him if Schuyler could only assure him that "all was right." It was said, "To this Mr. Robert Schuyler made no other reply than shaking his head."

Harper's Weekly, for February 10th, 1866, in reviewing the case just recently settled, said . . . "Year after year (the case had) dragged on, but little progress was made . . . at last, some six years after the commencement of the suit a judgment was obtained . . . subsequently in favor of the Company.

"This was so discouraging to the litigants that many of them, worn out by long waiting . . . concluded to accept a compromise which was offered by the Company. Thus at least one-half of the claims was adjusted.

". . . But there was one man among the prosecutors who was not discouraged. This was Cornelius Vanderbilt. He had lent money to Schuyler on the so-called spurious stock . . . The adverse judgment did not dismay him. If the Company had patience, so had he. If they had a long purse, so had he. He rejected the proffered compromise with derision and bade his lawyers appeal and prosecute the appeal with vigor . . .

"Then followed more tedious years of postponements, arguments and side issues, motions and counter-motions, and all the legal maneuvers which are so profitable to lawyers . . . There is no doubt but the Company based its hopes in great part upon the death of Commodore Vanderbilt. If he died there was every reason to believe they might succeed in wearing out the other suitors and either induce them to accept the proposed compromise or defeat them altogether.

"And he was an old man, over seventy, with heart disease (so 'twas said), with a fondness for fast horses, and a habit of being dashed out of his wagon from time to time. The New Haven Directors each morning carefully examined the deaths under the letter "V," and mutely prayed for the release of their relentless prosecutor.

"Their prayers were not heard. The Commodore did not die. On the contrary, in spite of heart disease, fast horses and upsets he seemed to grow most pertinacious at the very time other men's patience would weary and, at the very moment the Company expected a season of repose, he was upon them more furiously than ever, with new motions and arguments and fresh reinforcements of lawyers. And so at last, after more than eleven years of waiting, he fought the suit to judgment in the Court of Appeals and won it—obtaining a decision for the whole amount claimed, with eleven years interest and costs . . ."

These notes represent very briefly some of the results of Robert Schuyler's financial activities. The quoted comments are only a few of the vast numbers of such comments in the contemporary press and thousands of pages of court records. The term "Schuylerizing" was coined at that time as descriptive of such financial chicanery.

Here ends what may be called Chapter One of the New Haven Railroad History. Other chapters followed in due course. Invidious comparisons between the Railroad's first and some of its following presidents should not be drawn!

Some Early Locomotive Patents

By Paul T. Warner

This article supplements one by the same author, and having the same title, which was published in BULLETIN NO. 87.

1

Patent No. 52,406, granted February 6, 1866, to Mathias N. Forney, for "Improvement in Locomotives."

This patent is of special interest, not only because of the type of locomotive which it discloses, but also because the inventor was one of the most prominent mechanical engineers of his day. As author of the "Catechism of the Locomotive," originally published as a serial in the *Railroad Gazette*, Mr. Forney became internationally known as an expert in the railroad motive power field.

The Forney patent carries only two claims, but these are preceded by a lengthy specification describing a new design of tank locomotive, and comparing it with a 4-4-0 type locomotive and tender, as then commonly employed in road service. Such a locomotive weighed approximately 62,000 pounds, with 40,000 pounds on the drivers. The loaded tender weighed about 40,000, making a total weight, engine and tender, of 102,000 pounds, of which slightly less than 40% was available for adhesion. In the Forney design, the truck was moved to the opposite end of the locomotive, and was placed under an extension of the main frames, which supported a water tank or fuel bin, or both. The total weight was estimated at 71,000 pounds, of which 44,000 pounds, or about 62%, were carried on the drivers and were available for adhesion. In normal operation, the truck was at the leading end of the locomotive, and the smoke stack was at the rear.

The drawings accompanying the Forney patent show a boiler with steeply sloping crown and roof sheets, similar to the designs used by Ross Winans in his "Camel" engines, and also by Millholland in many of the hard-coal burners which he built for the Philadelphia & Reading. The sloping firebox roof provided room for a fuel bunker which was placed next to the cab, while the water was carried in a tank supported by the truck. The patent stresses the advantages of this arrangement, but in practice it apparently was not used to any extent, as the supply of both fuel and water was carried over the truck, and a boiler of conventional form, with horizontal roof sheet, was used. Such a design was shown in the first edition of Forney's "Catechism," published in the early 1870's.

The lengthy specification forming part of the Forney patent directly implies that the new design of tank engine could replace a large proportion of the 4-4-0 type locomotives then used in both passenger and freight service, with most beneficial results. On short roads or branch lines, where speeds were relatively low, this might easily have been true; but for main line work—even 80 years ago—the necessary speed and hauling capacity, combined with a sufficient supply of fuel and water

M. M. Forney,

Locomotive.

No. 52,406. Patented Feb. 6, 1866.

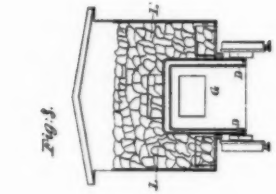


Fig. 1.

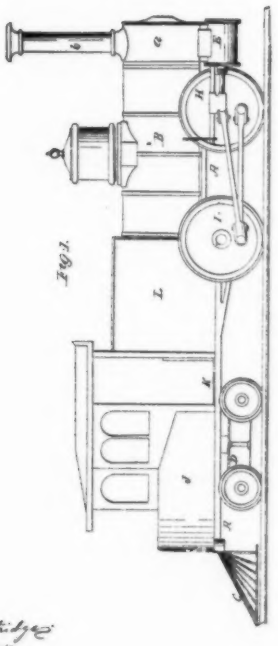


Fig. 2.

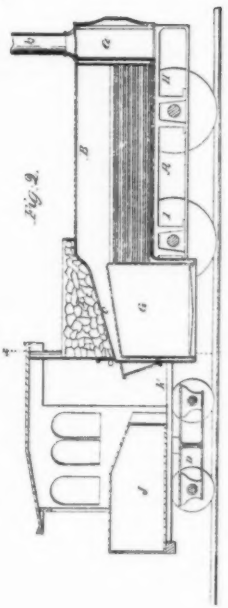


Fig. 3.

Witnesses:
W. S. Partridge
Daniel Breed

Inventor:
M. M. Forney

One of the little "Pechot" Locomotives built by Baldwin for the French Government during World War I.

for making long runs, could not possibly be combined in a tank engine, any more than they could today. Given two locomotives, one a 4-4-0 tender engine and the other an 0-4-4 Forney tank, with the same weight on drivers, the starting tractive forces of the two would be approximately the same; but with equal loads behind the draw-bar, the tender engine, with its larger cylinders and drivers and greater steaming capacity, would soon outrun the tank engine. In other words, on a *horsepower basis*, the tender engine would have a great advantage over the other. This phase of the situation is not discussed in the Forney patent specification, neither is the term "horsepower" used. It is of course a fact that the tank engine would be the cheaper in first cost and also probably in maintenance; but on the basis of ton-miles produced per hour, the locomotive with separate tender would have a great advantage.

The best-known designs of Forney type locomotives were probably those used on elevated railroads, notably in New York and Chicago. For the New York elevated lines, the Baldwin Locomotive Works alone built 115 Forney's during the years 1878 to 1891. Those engines were normally run stack first going south and tank first going north. The largest had 12x16-inch cylinders and driving wheels 42 inches in diameter, and weighed 45,000 pounds in working order. Hard coal was used for fuel, and the locomotives easily traversed curves as sharp as 100 feet radius when running in either direction. For elevated railroad service in Chicago, Baldwin built a group of Vauclain compound Forney's in 1892. Other builders also supplied Forneys for elevated and suburban service. These locomotives have probably all gone to the scrap heap by this time, although when the elevated lines were electrified, many of them were sold to contractors, and for years were used in construction work from one end of the country to the other.

2

Patent No. 52,117, granted January 16, 1866, to Robert F. Fairlie of London, England, for "Improvement in Locomotive Engines."

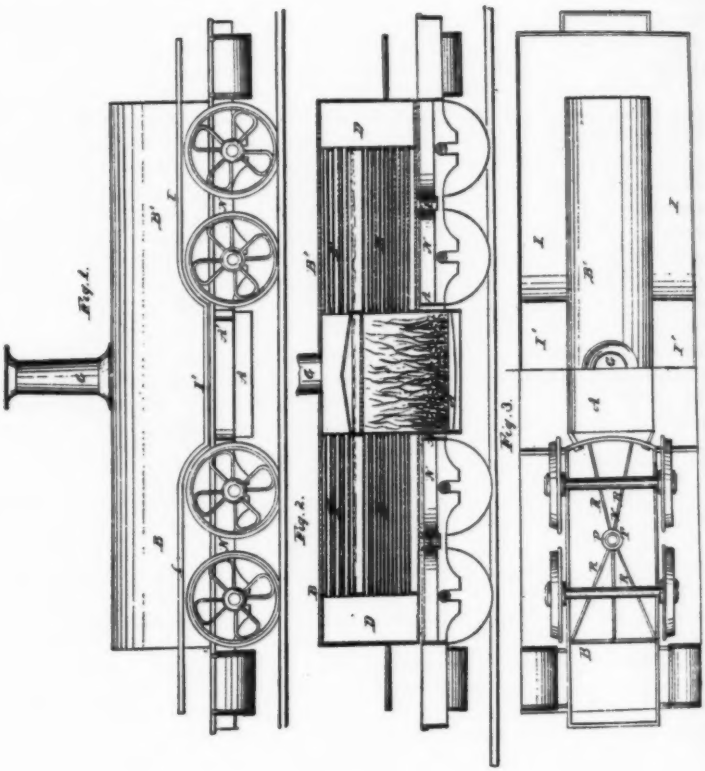
This patent is of interest, not only because of the design of locomotive which it discloses, but also because the said design, in modified form, was later built in considerable numbers by William Mason of Taunton, Massachusetts. We quote as follows from the Fairlie patent specification;—

"The object of this invention is to obtain a large amount of tractive power and at the same time avoid any excessive pressure of the driving wheels of a locomotive, adapting itself readily to the turning of sharp curves without the disadvantages usually attending the action of large locomotives under like circumstances. These objects are obtained by mounting the boiler on the center of two truck frames, each having four or more wheels and one, two, or more cylinders, each truck and its adjuncts forming two distinct engines, which are each complete in themselves, the steam being supplied from the boiler to both sets of engines. The boiler is thus mounted on a large number of wheels—which are displaced in such a manner as to permit the engine running freely on the sharpest curves. The firebox of the boiler is in the middle, and

R. F. Fairlie,

Locomotive Engine,

No 52,117, Patented Jan. 16, 1866.



Witnesses.

Inventor.
R. F. Fairlie
By Munn & Co
Atty.

from said firebox extends the body of the boiler in either direction, terminating at each end in a smoke or sub firebox or flue, and the chimneys may be mounted on these smoke-boxes, as usual, or the boiler may be made with an upper and lower series of tubes with one smoke-stack in the middle, so as to compel the products of combustion to pass through the lower set of tubes and then back through the upper set to the smoke-stack."

The specification is accompanied by three drawings, showing, respectively, an outside longitudinal view of the locomotive, a longitudinal section taken on the center line, and a plan with half the boiler omitted. The return tube arrangement, with one stack at mid-length, is shown in these drawings, and it was evidently preferred by Mr. Fairlie. It is more than probable, however that few if any boilers were actually built that way. Certainly the patent drawing, which is far from complete, shows a boiler design that would be impossible to build or operate.

The writer knows of only two genuine Fairlie type locomotives that were ever used in this country. The first, named "Janus," was built by William Mason of Taunton, Massachusetts, and was eventually sold to the Lehigh Valley Railroad. It was of the 0-6-6-0 type, with 15x22-inch cylinders and driving wheels 44 inches in diameter, and it weighed approximately 82 tons in working order. It was eventually rebuilt as two 0-6-0 type switchers. The second, named "Mountaineer," was built in England in 1873, for the Duke of Sutherland, who in turn presented it to the Denver & Rio Grande railroad. This curiosity had 10x18-inch cylinders and 39-inch drivers, and weighed 62,000 pounds in working order. The track gauge was 3 feet, and the road was located in mountainous country and had many steep grades and sharp curves. The locomotive was difficult to maintain, as the machinery was very inaccessible and the flexible joints in the steam pipes gave frequent trouble from leaking. It was withdrawn from service in 1883.

The little "Pechot" locomotive (so-called), hundreds of which were built by The Baldwin Locomotive Works during World War I, to the orders of the French Government, were in all respects Fairlies. They were tried out on a test track built in the form of a figure 8, at the Baldwin Eddystone Plant, and the writer remembers seeing them under steam at that time. All the dimensions on these little engines were measured on the metric system. Converted to English measurements, they had cylinders 6.89 inches in diameter by 9.45 inches stroke, drivers 25.59 inches in diameter, and weighed 28,200 pounds in working order. The boiler had two inside fireboxes, built of copper plates, and the location of the two firedoors is plainly shown in the accompanying illustration.

The book by E. L. Ahrons on the British Steam Locomotive, 1825-1925, illustrates and describes a number of Fairlie locomotives built in England for export. The largest of these was built in 1889, for the Mexican Railway. It was of standard gauge, of the 0-6-6-0 type, with 16x22-inch cylinders and 42″ drivers. On a certain occasion one of these locomotives broke loose from its train, and ran away down a 4% grade. Although its speed reached more than 60 miles an hour, it traversed

curves of 350 to 400 feet radius, and stopped at the foot of the hill without suffering damage.

Of special interest in the United States are the "Mason-Fairlie" or "Mason-bogie" locomotives, built by William Mason of Taunton, Massachusetts, during the years 1872-1887. It was Mr. Mason's object to build locomotives having the flexibility of the Fairlie type, but of simpler design and better fitted to meet the operating requirements of the railroads in this country. Accordingly he used only one steam-driven truck, which carried a boiler of conventional design; and the supply of fuel and water was carried on a rearward extension of the frames, which was supported by the second truck. As originally designed, the forward, or steam driven truck, pivoted on a casting secured to the under side of the boiler barrel; while the rear frame extensions were bolted to the sides of the firebox, which was of the "wide" type, placed back of the drivers and extending laterally beyond the track gauge. With this arrangement, draft and buffing stresses were transmitted through the rear part of the boiler. As larger locomotives were built, the design was modified so that there was a frame structure extending from the center plate of the power truck to the rear end, thus relieving the boiler of pulling and buffing shocks.

Mason used the Walschaerts valve gear on many of his "double-bogie" locomotives; and as there was little room under the boiler for the reverse shaft, he placed the latter on top of the boiler, and used long connecting links for raising and lowering the radius rods. The links were of such length that there was no appreciable distortion to the movement of the valves when the locomotive was traversing sharp curves. Mason built these locomotives with various wheel arrangements, frequently using a pair of leading wheels on the steam "bogie." The number of pairs of drivers varied from two to four. The engines were highly regarded, and were particularly successful on narrow gauge lines having many sharp curves. A total of 148 were built at Taunton during the years 1872-1887.

3

Patent No. 136,729, granted March 11, 1873, to William S. Hudson, for "Improvement in Locomotives."

Although the device disclosed in this patent was probably never applied to a locomotive, it is of interest because it recognizes the economies to be derived from compounding and superheating, and also because it discloses an arrangement for admitting live steam direct from the boiler to the low-pressure cylinder at the will of the engineer. The inventor, William S. Hudson, who was Superintendent of the Rogers Locomotive Works, was a designer of great ability, who specialized on such features as trucks and running gear, and was granted a considerable number of patents covering locomotive details.

Claim 2 of Patent 136,729 reads as follows;—

"The arrangement, in the smoke-box of a locomotive, of a drying and superheating vessel, with connections to the two cylinders, the whole so operated that the live steam shall be received from the boiler into

W. S. HUDSON.

Locomotives.

No. 136,729. Patented March 11, 1873.

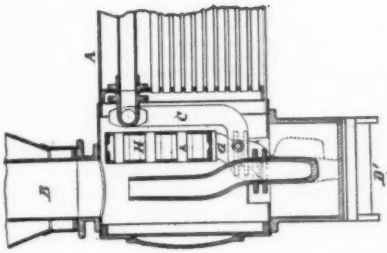


Fig. 2.

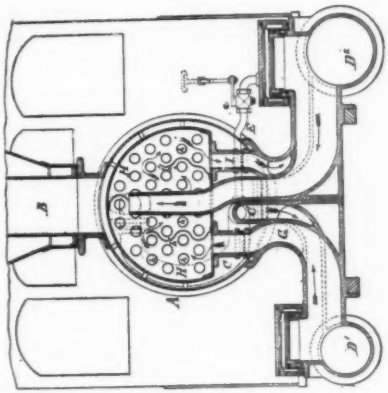


Fig. 1.

Witnesses:

Arnold Hermann.

M. C. Dey

Inventor:

W. S. Hudson

by his attorney T. S. Stetson

New York

one cylinder and exhausted therefrom into the other cylinder through the said superheater, as herein specified."

In Claim 1 of the patent, the superheating vessel is described as being "in the form of a broadly-extended diaphragm, perforated by tubes—and provided with one or more partial partitions." This vessel was a flat chamber, conforming in shape to the contour of the smokebox, except that it had a flat bottom. It was traversed by tubes, through which the exhaust gases passed on their way to the stack. Steam from the boiler was conveyed direct to the smaller (high-pressure) cylinder, and was then exhausted into the "superheating vessel," from which it was taken to the larger (low-pressure) cylinder through a suitable pipe connection. There was also a comparatively small pipe leading from the high-pressure steam pipe direct to the low-pressure steam chest, and having in it a shut-off valve controlled from the cab. By opening this valve, live steam could be conveyed to the low-pressure cylinder before it received the high-pressure exhaust. There was no means for exhausting direct from the high-pressure cylinder to the stack.

In the two-cylinder compound as used in the United States some 20 to 30 years after the Hudson patent was issued, the "superheating vessel" was replaced by a "receiver pipe" which served, at least to some extent, as a reheater, and there was an auxiliary exhaust from the high-pressure cylinder to the stack, so that the locomotive could be worked single expansion at starting, or when there was danger of stalling on a heavy pull. The germ of this idea is plainly found in the Hudson patent, which is of special interest on that account.

4

Patent No. 70,341, granted October 29, 1867, to John L. Lay, for "Improvement in Locomotives."

This patent is of special interest, as it is undoubtedly the one on which was based the design of the first compound locomotive used in the United States. The locomotive referred to was an Erie engine, and it was rebuilt from a single expansion to a tandem compound at the Sheppard Iron Works, Buffalo, in 1867. F. H. Colvin, in his book "American Compound Locomotives" (1903) states that the compound features were designed by H. O. Perry and J. L. Lay, who had previously (May 21, 1867) been granted a patent for a tandem compound marine engine.

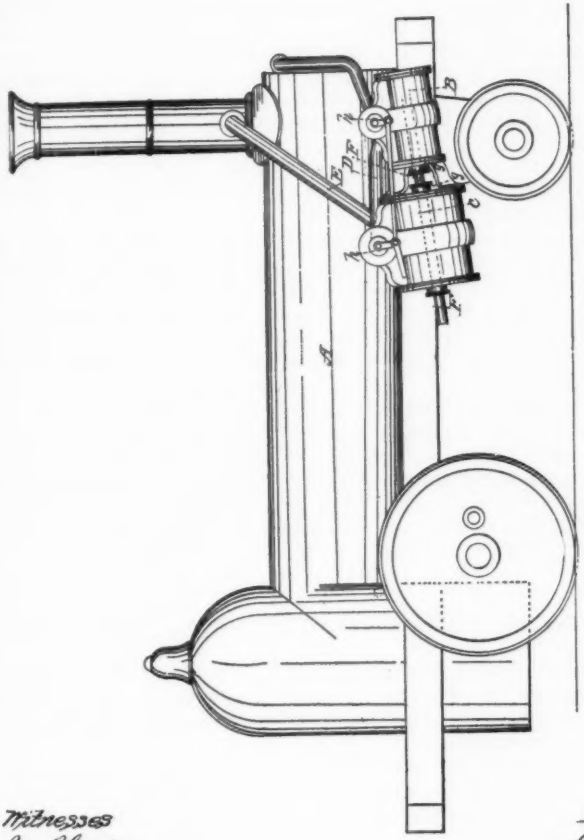
The rebuilt locomotive had high and low-pressure cylinders respectively 12 and 24 inches in diameter, by 24 inches stroke. All the cylinders were fitted with slide valves. The locomotive apparently did good work, but coal economy was not a matter of much importance at that time and it was not duplicated.

One curious feature of the Lay patent is, that the drawing shows a locomotive of a general design that was antiquated when the patent was granted. The two cylinders are separated, so that all stuffing boxes are accessible. The drawing shows rotary valves, but the specification states that "any style of valves may be used," etc. Rotary valves were used in the marine engine patent previously referred to.

J. L. Lay,

Locomotive.

No. 70,341 Patented Oct. 29, 1867.



Witnesses

Jay Hyatt

J. R. Dralle

Inventor

Jos. L. Lay

by J. Munn & Co.

Attys

In the specification accompanying the Lay patent, the advantages resulting from the use of compound cylinders on locomotives are stated as follows:—

"As locomotive engines are non-condensing, and required to work steam at a high pressure, varying from ninety to one hundred and thirty pounds per square inch, much of the effective power is lost, as the steam is frequently exhausted from the cylinder under a considerable pressure, and this, acting as back pressure on the piston, reduces by so much the available driving force. This exhaust is necessarily through the smoke-stack, in order to produce sufficient increase of combustion in the furnace to generate the enormous amount of steam required by this wasteful process. As it is the object of my invention to economize by the use of a smaller quantity of steam at high pressure in the first cylinder, and adding its expansive power in the second to the work performed in the first, exhaust it at a pressure ordinarily but little above that of the atmosphere, thereby utilizing more of the power, and by obviating the necessity of such intense heat in the furnace, and maintaining by the low-pressure exhaust a steady and uniform combustion, effecting a great saving in fuel.

Following the experiment on the Erie Ry. in 1867, the writer knows of no additional tandems being built until 1893, when one was included in the exhibit of the Brooks Locomotive Works at the World's Columbian Exposition. That locomotive was a 2-8-0, built for the Great Northern Railway. About the turn of the Century, and for a few years thereafter, both The Baldwin Locomotive Works and the American Locomotive Company built quite a number of tandem compounds. In all of them, the high-pressure cylinders were bolted to the front ends of the low-pressure, so that the rod packing between the cylinders was inaccessible. It may be noted, however, that in the volume "Modern Locomotives," published by the *Railroad Gazette* in 1901, there are illustrated tandem compounds of the 4-6-0 and 2-8-0 types, designed and built by the Atchison, Topeka & Santa Fe Railway, in which the high and low-pressure cylinders are separated, as shown in the Lay patent.

5

Patent No. 230,472, granted July 27, 1880, to Eugene Fontaine, for "Locomotive."

This patent disclosed what was in all respects a "freak," the object being to increase the speed of a locomotive without unduly increasing the piston speed in feet per minute. The patent specification includes the following statement:—

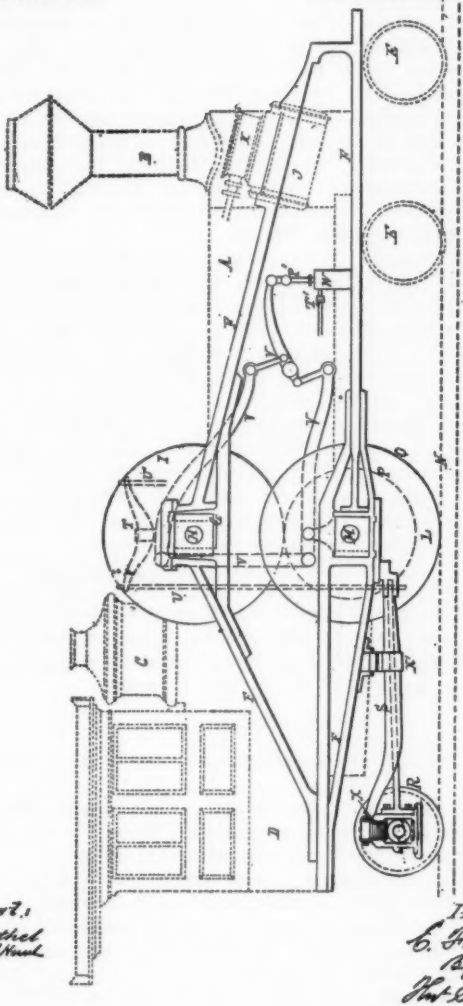
"It is found in practice that to attempt to increase the speed of locomotives as ordinarily constructed, it can be only attained by an enlargement of the driving wheels, or by a pro rata increase in the number of revolutions of the pistons. To enlarge the drivers has been found partially impracticable, because by so doing the center of gravity of the locomotive was so elevated as to cause such a swaying or gage motion that, except on a straight track, the locomotive was liable to leave the track; and it has also been found impracticable to materially

(No Model.)

E. FONTAINE.

Locomotive.

No. 230.472. Patented July 27, 1880.



Witnesses:
N. Barthel
Charles J. Kraus

Inventor:
E. Fontaine
By atty
Hurt & Springer

increase the number of reciprocations of the piston, except at a large expenditure of fuel and a possible straining of the boiler to carry steam at such a height as to overcome the back lash or expansion of steam in the cylinders, which cannot escape with sufficient rapidity through the ordinary escape ports."

In the Fontaine locomotive the cylinders were inclined upward, and the single driving axle was placed above the boiler. Immediately below the driving wheels was a pair of wheels having two treads, of different diameters, the larger tread resting on the rails. The driving wheels bore on the smaller treads. In effect therefore, the engine was geared up for speed, using a friction drive in the transmission instead of toothed wheels. On each side of the locomotive was an air cylinder acting on a system of levers, whereby the friction between the upper and lower wheels could be increased or diminished at the will of the engineer. Supporting the rear end of the locomotive was a pair of carrying wheels, which were equalized with the drivers.

A locomotive designed in accordance with the Fontaine patent was built by the Grant Locomotive Works, of Paterson, New Jersey, in 1880, and was tried out on a number of railroads. The upper driving or friction wheels had a diameter of 72 inches; the lower wheels, which rested on the rails, had a diameter of 70 inches, while the lower friction wheels were 56 inches in diameter. The cylinder diameter was 16 inches and the piston stroke 24 inches. In a direct-connected locomotive, therefore, the driving wheel diameter would have to be 72/56x70, or 90 inches, to move the engine the same distance for each reciprocation of the pistons. The speed at which trains were run in 1880 did not require locomotives with such large wheels, and even if they had, a direct-connected design would have been far more effective than the complicated Fontaine system with its friction wheels and levers.

The fallacy of the Fontaine arrangement was disclosed in a lengthy editorial published in the *Railroad Gazette* of November 4, 1881. This editorial refers to a second engine which apparently had been built, and also to a design with four coupled wheels, intended for freight service. The locomotives which had been constructed were apparently rebuilt later as 4-4-0 type engines of conventional design.

6

Patent No. 247,108, granted September 13, 1881, to Christian Raub, for "Locomotive."

This patent describes a locomotive which breaks away from conventional designs, and is in all respects a "freak." The object of the invention is thus described in the patent specification:—

"My invention is designed to construct a new system of locomotives, in which the motive power is established at and within the transverse vertical plane of the center of gravity, and in which all the component parts are located and distributed equidistantly from and symmetrically to said plane of the center of gravity."

The Raub locomotive was symmetrical about a vertical, transverse plane at mid-length of the structure. The center of gravity was located

(No Model.) 7 Sheets—Sheet 1.

C. RAUB.

LOCOMOTIVE.

No. 247,108. Patented Sept. 13, 1881.

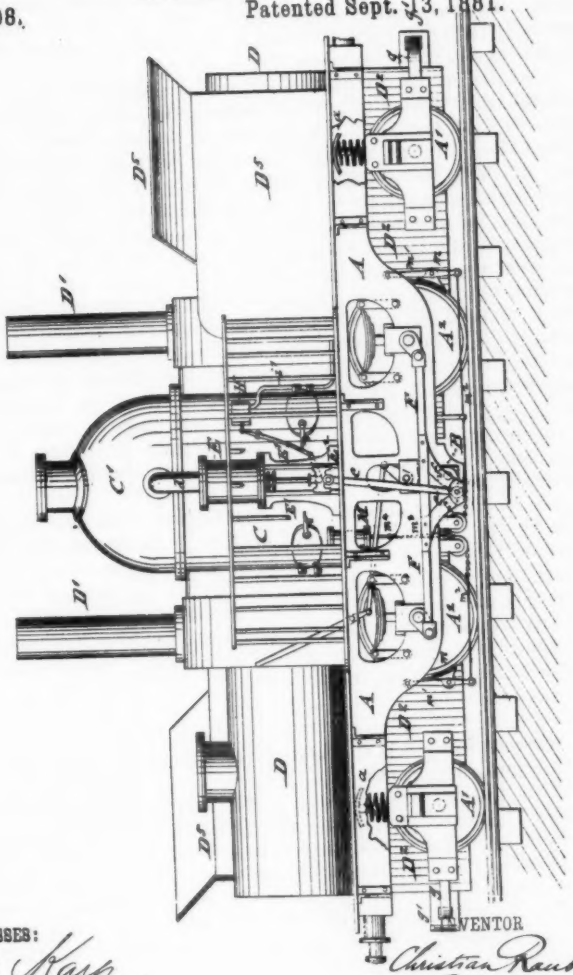


Fig: 1.

WITNESSES:

Carl Kaup

Otto Rusch

INVENTOR

Christian Raub

BY Paul Gockel

ATTORNEY

in this plane, which also served as the center line of the vertical cylinders. The boiler had a central dome, with two fireboxes located under the dome, and two barrels extending to the ends of the locomotive. There was a guiding truck at each end, and the patent drawings show three wheel arrangements—2-4-2, 2-6-2, and 4-2-4; the last-named being specially suitable for "elevated and narrow-gauge railroads, special trains, and similar purposes."

As the wheel arrangement was symmetrical with reference to the central transverse plane in which the cylinders were located, it is evident that, with an even number of pairs of drivers, there would be no wheels immediately under the cylinders; but with an odd number—either one pair or three pairs—there would be a pair of drivers with its vertical center line coinciding with the cylinder center lines. In the former case, connecting rods drove a transverse jack shaft, which was in turn coupled to the wheels by side rods; while in the latter case the connecting rods were directly connected to the center pair of drivers. In the locomotive with a single pair of drivers, a crank axle was used, and there was a vertical slit in the boiler to accommodate the cylinders and machinery. The entire structure was fantastic, and was proof of the fact that the inventor was an amateur who had little knowledge of mechanics. Angus Sinclair, in his book "Development of the Locomotive Engine," says (page 487), "This engine was not only an oddity, it was a fake of the worst kind. Instead of an advance in design, it was returning to pioneer practices, being a product of combined ignorance, egotism and perversity."

A locomotive designed in accordance with the Raub patents was built by the Grant Locomotive Works, of Paterson, New Jersey. In the *Railroad Gazette* of October 15, 1886, there is a reference to this engine, stating that it was ready to leave for St. Louis, and that the inventor claimed that it had "far exceeded his most sanguine expectations." Sinclair gives an illustration which supposedly represents the engine, and shows it to have been of the 0-8-0 type.* Needless to say, the locomotive was a complete failure.

7

Patent No. 546,153, granted September 10, 1895, for "Attachment for Locomotive Engines."

This was an absurd fake of the worst kind. Had it simply been allowed to die without being exploited it could be regarded as a joke, but a stock company was formed to sell the device, and many unsuspecting persons invested their savings in it, only to lose every cent. The appearance of the affair was quite enough to condemn it as an absurdity.

The Holman device, like the Fontaine was a scheme for "gearing up" the locomotive by means of friction wheels, so that the distance traveled for each revolution of the drivers would be materially increased. Each pair of driving wheels rested on two pairs of friction

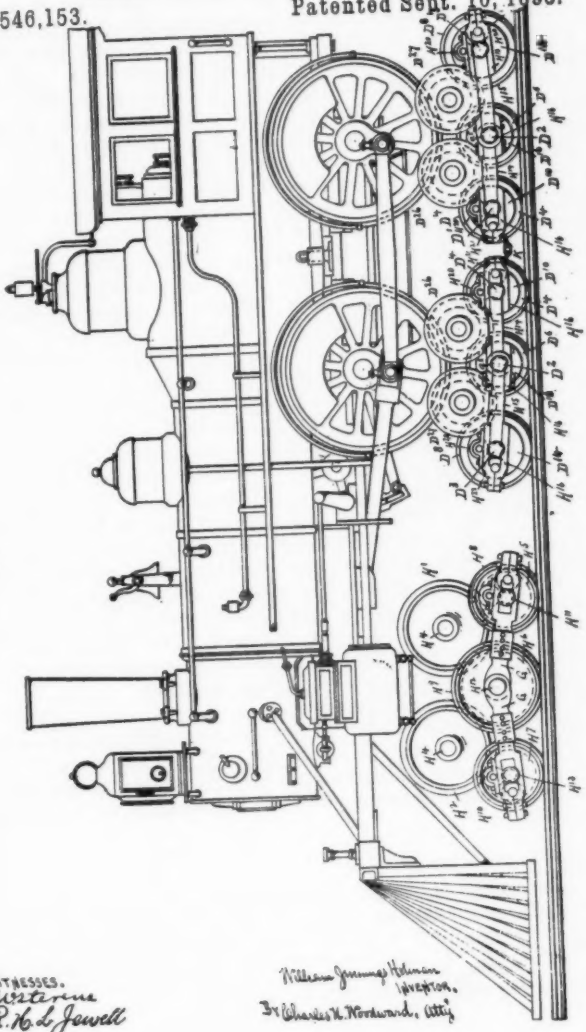
* Sinclair erroneously gives the name of the inventor as Raul, and the date as 1892.

(No Model.) 5 Sheets—Sheet 1.

W. J. HOLMAN.

ATTACHMENT FOR LOCOMOTIVE ENGINES.

No. 546,153. Patented Sept. 10, 1895.



Witnesses.
Chas. E. Mann
R. H. L. Jewell

William Jennings Holman Inventor.
By Edwards & Woodward, Attys.

wheels, and these in turn were supported by three pairs of wheels which ran on the track rails. Each friction wheel had two treads of different diameters, the larger tread resting on the smaller tread of the wheels below it. The writer has no dimensions of the wheels used in the Holman trucks, but from a study of the patent drawings it would appear that the distance traveled by the locomotive, for each revolution of the main drivers, would be increased by about 75 per cent; this with a corresponding reduction in the pull at the drawbar, and making no allowance for the power absorbed in the friction trucks. The trucks themselves were held together by an amazing arrangement of bars, straps, turn-buckles and other gadgets which it is not necessary to describe. The one redeeming feature of the arrangement was that the locomotive could be changed into a practical machine by simply lifting it off the speeding trucks, and making a few changes which were easily effected.

The writer knows of at least three locomotives of the 4-4-0 type—all built by the Baldwin Locomotive Works—which were originally fitted with the Holman speeding trucks. Apparently the trucks themselves were not built by Baldwin, but were constructed elsewhere and sent to the Philadelphia Plant for assembly. The first engine, built in 1895 to the order of W. J. Holman, was a typical 4-4-0 of the period, with 18x24-inch cylinders and driving wheels 63 inches in diameter. It was tried experimentally and sold to the Buffalo & Susquehanna Railroad—minus the speeding trucks—in 1898. The other two locomotives were built in 1897 to the order of the Holman Locomotive Speeding Truck Company. They were lettered "South Jersey Railroad," and had road numbers 10 and 12. Apparently the illustration on page 491 of Sinclair's "Development of the Locomotive Engine" shows one of them. These were comparatively large locomotives of their type, as they had 20x26-inch cylinders and driving wheels 63¼ inches in diameter, and carried a steam pressure of 200 pounds. The builder's record gives the total weight of each locomotive as 161,000 pounds, with 113,200 pounds on the "driving trucks." The boilers had long fireboxes placed above the frames. These two engines were later sold to the Kansas City & Northern Connecting Railroad.

The Holman patent includes seven claims, all of which describe the construction of the trucks. They are probably valid because of the novelty of the device, but it would be well if inventions as absurd as this one were declared unpatentable because of the losses subsequently incurred by ignorant persons who are persuaded to invest money in such schemes.

Editor's Note:

The records of the New York Locomotive Works, Rome, N. Y., show that in March, 1885, they received from Messrs. Woodford & Dunbar these two Fontaine locomotives, one 16x24" and the other 17x24" cylinders, for repairs, cost of which was $2450.00 and $2600.00 respectively and that they were subsequently placed in service on the Wheeling & Lake Erie R. R., road Nos. 16 and 17 respectively. They were rebuilt to conventional 4-4-0 type locomotives.

Emmitsburg Railroad

By W. R. Hicks

At the time the Western Maryland Railroad prepared to build from Union Bridge, Md. to Hagerstown, Md. three routes over the mountain were considered. One of the projected routes was through the town of Emmitsburg, Md. The final decision of the railroad management resulted in locating the main line through Rocky Ridge, Md., a small community about seven miles south of Emmitsburg. This was a great disappointment to the citizens of the town of Emmitsburg who realized that the railroad would rapidly become the principal means of transporting goods rather than by stage and wagon.

On May 17, 1757, Mr. Samuel Emmit took out a patent for 2,250 acres of land. It wasn't long before he sold off lots to incoming persons and established a center which was known as Poplar Fields, Md. In 1875, the town was laid out and named Emmitsburg, Md.

All hauling of merchandise from Baltimore, Md. to the West in the early days was done by teams, usually of six horses. Emmitsburg was on the road route to Pittsburgh, Pa. and hundreds of teams passed through the town each year as they traveled east and west. When the railroad construction reached a vicinity, the western terminal point of the railroad usually became the western terminal point for horse drawn traffic. As the railroad terminal points moved west, commerce, in many towns that did not have a railroad, was reduced and the taverns and stables along a turnpike closed because of a lack of business. The through stages ceased coming to Emmitsburg when the Western Maryland Railroad reached Thurmont, Md. The local stage line between Emmitsburg and the Western Maryland Railroad at Thurmont, Md. ceased to run when the Emmitsburg railroad was opened in 1875. Present day progress has again dictated that the short haul be handled over the highway.

The business people of Emmitsburg decided at a town meeting that the community needed a railroad connection to carry products to and from markets if the town was to stay in existence. On March 28th 1868, the Emmitsburg Railroad was incorporated by an act of the Maryland Assembly. The incorporators were:—

D. G. Adelsberger
Joseph Brawner
Joshua Walter
E. S. Taney
Joseph Byers
Dr. Andrew Annan
Isaac Hyder
George W. Rowe
Dr. James W. Eichelberger, Sr.
Christian Zacharies
Michael Adelsberger

Lewis M. Motter
John K. Taylor

From the number of incorporators you can recognize that the railroad was a community project even though it was encouraged by the Western Maryland Railroad. Mr. Joseph Motter was the first president.

Under the charter, the company was authorized to build a railroad from Emmitsburg, Md., to a point on the Western Maryland Railroad west of the Monocacy River, the exact location to be determined by the board of directors. The survey for the route was made by Mr. Joseph S. Gitt, an outstanding engineer, who had done the survey work for the Western Maryland Railroad in preparation for the building to Hagerstown, Md.

The determined route for the Emmitsburg Railroad called for the beginning of construction at Emmitsburg, Md., east of the foundry and at Frederick Turnpike, heading south along the east side of the turnpike, crossing the avenue leading to St. Joseph's College with a bridge 16 feet above the avenue, then deflecting left and making a crossing of Tom's Creek with a Howe Truss bridge of 100 feet span and 23 feet above the water. After crossing the bridge the line deflected to the left again crossing Telegraph Road, thence deflecting to the right the line goes direct for several miles, passing west of the residences of Long, Ovelman and Black and parallel to the Rocky Ridge Road, which is crossed near Black's store, continuing to run along Rocky Ridge Road until the tracks of the Western Maryland are reached on the west side of the town of Rocky Ridge, Md. The contemplated grades of the road were easy, as the southern terminus of the road is but fourteen feet below the terminus at Emmitsburg. The only grade worth mentioning is the ascent from Tom's Creek to the table lands south of it. Ground was broken in July 1871, the Railroad started on the route as originally laid out. The grading work was done under contract by Mr. John Donoghue. In 1872, the grading was completed but it wasn't until 1875 that Taylor Bros. had finished building the bridge and the light rails purchased from the Western Maryland Railroad under the agreement of August 26th 1875, had been put down. This used 40 pound rail had been taken up between Hagerstown, Md., and Williamsport, Md., when the Western Maryland Railroad replaced it with 60 pound rail.

November 22nd 1875 was the day the first train was operated. It was a big day with free excursion over the line for everybody. The first excursion train from Emmitsburg to Baltimore, Md., was run on November 27th 1875 when about 400 passengers bought tickets to make the trip. The first mail was handled over the road on December 6th, 1875. The original operation of the Emmitsburg Railroad was conducted by the Western Maryland Railroad on a cost basis as they were content to get their profit from the freight that originated on the Emmitsburg Railroad but was run over the Western Maryland Railroad.

The leading spirits in raising the money for the construction of the railroad were Rev. John Mc Closkey of Mt. St. Marys College, D.

G. Adelsberger of Emmitsburg and Joshua Biggs of Rocky Ridge, Md. Before the road was completed the funds ran out and construction was held up for about two years. The Sisters of Charity of St. Joseph's, who would benefit greatly by having the railroad bring in their fuel and supplies came forward with a substantial subscription to the bond issue. This insured completion.

In 1879 the Company took over its own operation from the Western Maryland Railroad. Engine No. 1 was purchased from the Baldwin Locomotive Works.

It was announced that the Gettysburg and Emmitsburg Railroad had been incorporated on November 10th 1882 to construct a railroad from the projected Round Top Railroad at Round Top, Pa., (near Gettysburg) to the Maryland State Line in Adams County, a distance of about six miles. Capital stock to be $60,000 and the headquarters to be at Hanover, Pa.

This prompted the Emmitsburg Railroad management to give such a competitive possibility some real consideration. On August 22nd 1890, Mr. Beaton Smith of York, Pa., completed the survey for the Emmitsburg Railroad from Emmitsburg, Md. to Gettysburg, Pa., a distance of about eleven miles with light grades for most of the distance. No connecting line was ever built.

After several years of effort it was found that the new railroad could not pay interest on the first mortgage bonds that had been issued. The bonds were scaled down and a new mortgage given which, after some years, was also defaulted. In 1896 the railroad passed into the hands of J. Roger Mc Sherry, Vincent Sebold and Isaac S. Annan, as Receivers. For seven years no interest had been paid on the bonded debt of $121,850.

On September 11th 1897 a public auction was held at Frederick, Md. The railroad was purchased for $29,500 by a syndicate representing the bondholders. Reorganization of a company of the same name was completed on April 14th 1898.

The first board of directors under the reorganization were:— James A. Elder, William A. Himes, Vincent Sebold, William G. Blair, Dr. J. B. Brawner and James H. Nusseor.

On July 20th 1890 the following officers were elected:—

Dr. James A. Elder, President.
William A. Himes, Vice-president.
William G. Blair, Treasurer.
Dr. J. B. Brawner, Secretary.
Vincent Sebold, Counsel.

Mr. Elder lived but a short time so at the annual election held on November 3rd 1898, Mr. W. A. Himes of New Oxford, Md. was elected president and Rev. William O'Hara was elected a director and vice-president. Mr. Vincent Sebold, who was to guide the railroad for many years was elected general Manager.

When the new management assumed control the property of the railroad consisted of very little more than the traditional "two streaks of rust and the right of way." From the earnings of the railroad, the new management progressively rebuilt the entire line, replacing the old iron rails with 60 pound steel rails; the wooden bridges with substantial new iron structures, and the roadbed with new ballast. New motive power was purchased and the rolling stock was renovated. The depots were rebuilt, and to better serve the customers of the company, a new grain elevator and coal chutes were constructed at Emmitsburg. All of these improvements were made without placing any bonded or floating debt and in addition the railroad began paying a small dividend of two per cent to the stockholders.

In 1906, the charter of the railroad company was amended by the Maryland Legislature to enable the company to extend in any direction in Frederick County, buy, lease or consolidate with any other company and to operate by steam or electricity.

This request to the Maryland Legislature was made after the officers of the Emmitsburg Railroad had traversed and considered a route for a proposed extension of the railroad from the southern terminus at Rocky Ridge to Woodsboro, Md., where a proposed connection could be made with the Pennsylvania Railroad. The length of the proposed addition would have been 4½ miles in length. There was also going on at the same time much discussion about the Frederick, Thurmont and Northern Railroad being built and its taking over the Emmitsburg Railroad as part of the proposed route to Gettysburg.

The Western Union Telegraph Company made an agreement with the Emmitsburg Railroad in 1906 and started at once to put up their wires along the right of way.

The minutes of December 14th 1908 show some Christmas spirit when a motion was made and passed to give to each regular employee two tons of coal and each daily worker one ton.

The days from July 13th to July 16th 1909 were the period of a big Home Coming Celebration at Emmitsburg. The Emmitsburg Railroad provided extra trains at special rates and carried more passengers during the week than at any other time in the history of the railroad. The Western Maryland ran special trains from Baltimore to Rocky Ridge, Md. where the train was taken over by the Emmitsburg Railroad and the Washington, Frederick and Gettysburg provided through service from Frederick, Md. by the way of Thurmont. The fare was $1.00 round trip. This sum was divided as follows:

W. F. & G.	50c	Frederick to Thurmont.
W. M.	25c	Thurmont to Rocky Ridge.
Emmitsburg	25c	Rocky Ridge to Emmitsburg

The Washington, Frederick and Gettysburg would haul by electric motor as far as Thurmont. The train would be shifted to the Western Maryland Railroad tracks and picked up by an Emmitsburg Railroad engine which would haul over the Western Maryland as far as Rocky Ridge and then over their own tracks to Emmitsburg. The Emmitsburg

Railroad rented additional cars from the Western Maryland Railroad during this busy time.

The minutes of January 22nd 1910 indicate that a motion was made and passed giving the manager the power to settle with those hurt in a small wreck at Rocky Ridge, Md.

The Western Maryland Railroad timetable of October 9th 1911 has the following schedule:

408	406	404	402				401	403	405	407
PM	PM	AM	AM				AM	AM	PM	PM
4:15		8:57		lv	Baltimore	ar	10:20		5:45	7:05
6:03		10:33		ar	Rocky Ridge	lv	8:27		3:26	5:22
6:05	3:30	10:35	8:30	lv	Rocky Ridge	ar	8:20	10:25	3:20	5:15
6:20	3:45	10:50	8:42		Motters		8:08	10:10	3:05	5:00
6:35	4:00	11:05	8:55	ar	Emmitsburg	lv	7:55	9:55	2:50	4:45

No service on Sunday.

On December 27th 1912 the general manager was authorized to dispose of engine No. 2.

In September 1913, the Emmitsburg Railroad became a railroad of distinction when they provided parlor car service, at no extra charge, for their seven mile line. The parlor car formerly used on the run from Baltimore to Gettysburg was bought from the Western Maryland Railroad for $400.00. It was completely refurbished by the Emmitsburg and remained in service for many years. One of the chairs from the car is now in a private home in Emmitsburg.

It was in 1919 that General Manager Sebold was authorized by the board of directors to purchase an engine offered for sale by the Bellefonte Railroad, if, in his opinion, it would be economical and suit the purpose of the Emmitsburg Railroad. After making the trip and examining the engine Mr. Sebold decided not to make the purchase. Before the close of the year he did purchase engine No. 44 from the Western Maryland for $4600.00.

The decline of passenger business had reached the point, in 1920, where it was not economical to run a passenger train. To replace the train, a gasoline car was purchased for $950.00.

In 1921, the bus from Gettysburg started running to Emmitsburg and terminated in the center of town. The Emmitsburg Railroad filed a protest with the Public Service Commission in an effort to have the busses terminate at the railroad station and provide a schedule that would meet the trains. This failed and passenger train riders continued to decline as the busses took them over.

A severe loss was suffered by the railroad with the passing of Mr. Sebold. He was succeeded in 1925 by Mr. James M. Alvey, as General Manager.

The passenger needs declined to such a point that in July 1925 the service was discontinued and the Public Service Commission granted permission to the company to operate a truck line over the state highway from Emmitsburg to Rocky Ridge for the carrying of mail, express and L.C.L.

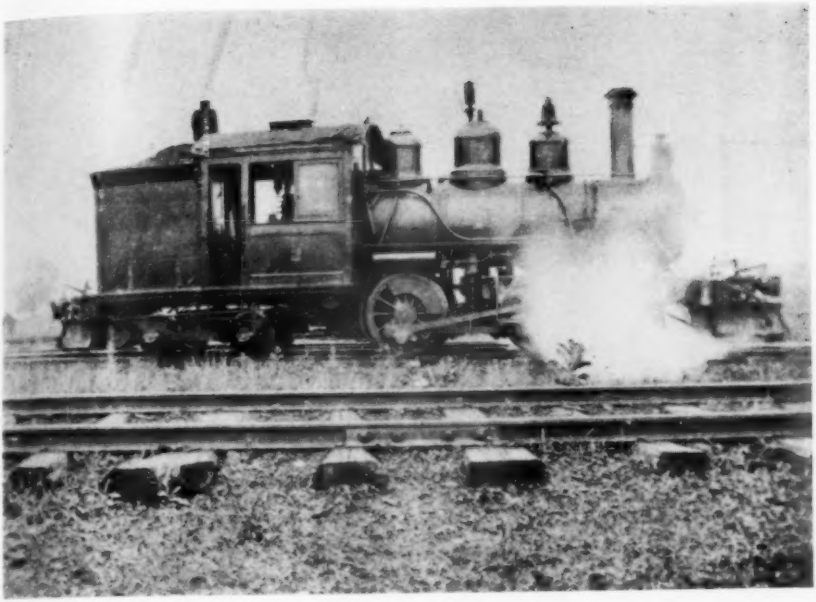
While this was an economy, there did not remain enough business to pay the expense of running a railroad on a when needed basis, so, at a special meeting of the board of directors, held on February 9th 1940, it was voted to abandon the railroad as soon as possible.

Operations ceased on May 15th 1940 and the railroad was sold at public sale on August 28th 1940. On May 8th 1941, the Interstate Commerce Commission authorized abandonment after which it was quickly torn up and sold for scrap. Today (1954) you can still follow much of the old road bed and tracks still curve away from Rock Ridge station as a part of a wye on the Western Maryland Railroad.

The only time that train orders were ever used on the Emmitsburg Railroad was a near accident that could have been most severe. It was the practice for the passenger train to haul to Rocky Ridge the Market Car, whenever it was ready, so that this important revenue car would not be delayed in making connections with the Western Maryland Railroad. One day the passenger train departed leaving this important car. When it was realized what had happened, the general manager gave written orders for the passenger train to wait on the return trip at Motters' Station, where there was a passing track. The message was telephoned to Rocky Ridge and the written orders were turned over to the conductor and engineer of the passenger train. In the meantime the general manager collected a crew of men at the engine house, told them to get steam up as soon as possible in the spare engine, which was then under low fire, pick up the forgotten car and go to Rocky Ridge to try to meet the Western Maryland Railroad connection. Mr. Sebold did not realize that the crew could get the engine and car on their way so soon when he sent the orders for the passenger train to meet. It was his belief that the passenger train would have quite a wait at the siding.

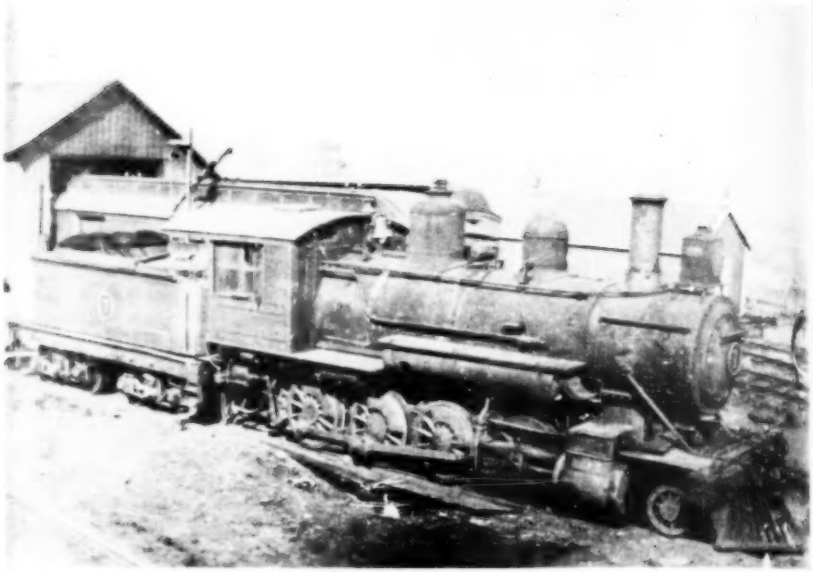
The brakes on the engine of the extra were not working so that slowing down was handled by a brakeman on the car. With poor brakes and a desire to make haste the extra crew came on before the passenger train, which was loaded with school children, could reach Motters' Station siding. Mr. Fox, one of the trainmen on the passenger train, hearing the extra coming, and realizing that the passenger train could not be backed into the siding in time, ran ahead to the switch and threw it, just as the engine of the extra was bearing down. The extra swayed on to the spur track with the expectation that it would possibly leave the rails and crash into the passenger train. The unexpected happened, the extra stayed on the rails and came to a halt before going over the end of the siding. Many hearts sank when they realized how close they had come to a serious accident. No more written train orders were ever used.

The roster of the Emmitsburg Railroad is complete as to the total number of engines that they had. In the earliest days, before the Emmitsburg Railroad had its own motive power, Western Maryland Railroad engines were used. Also, whenever additional or temporary replacement power was needed engines were rented. There is a record

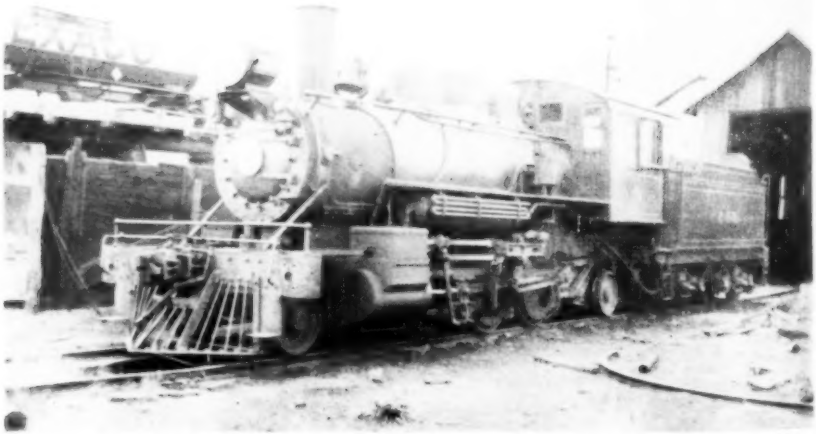


Emmitsburg R. R. #2.

Emmitsburg #6, 4-4-0, Baldwin #9263, 6/1888 at Emmitsburg, Md. Ex W. M. #43.

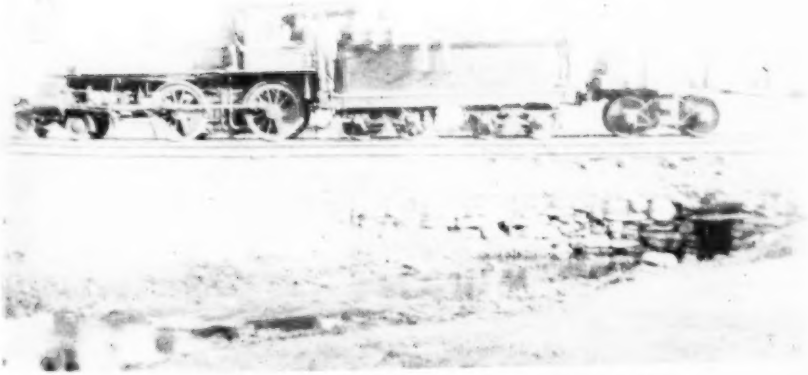


Emmitsburg #7, 2-8-0, Rogers #4342, 1890 at Emmitsburg, Md., 1931. Ex Southern Ry. #3.



Emmitsburg #8, 2-6-2, Vulcan, 1925 at Emmitsburg, Md., 1937. Ex. Marion Ry., Md. & Del. Seacoast #6

Rocky Ridge Sta. of Western Md. Former Emmitsburg R. R. Tracks to Left of Station 1952.



Monocacy Valley #2. Ex P. W. & B. R. R. Built by Rogers L. W.

of Hanover Junction, Hanover and Gettysburg Railroad engine No. 5 being used while Emmitsburg Railroad No. 1 was at the Union Bridge, Md. shops of the Western Maryland Railroad for overhaul.

Locomotive Roster

1	0-4-4T	Baldwin	6/1879	# 4693	12x16"	43"	48000 —	On 3/31/1910 this engine plus $100.00 was exchanged for the #4.
2	0-4-4T	Baldwin	4/1904	#24108	13x20"	44"	73000 —	In 1/1916 sold to H. M. Foster Co., Baltimore and by them to the East Berlin R. R. #2.
3	4-4-0	P W & B R R	1881	—	17x24"	62"	— —	Ex Maryland, Del. & Va. #9. Sold for scrap to Joseph Brennern Co.
4	4-4-0	Pittsburgh	1893	# 1413	17x24"	68"	88500 —	Ex P & L E #97. Purchased through R. C. Hoffman, Baltimore in exchange for $1. Sold to Joseph Brennern Co., Hagerstown, Md. for scrap 12/17/1924.
5	4-4-0	Baldwin	5/1895	#14290	18x24"	62"	— —	Ex W. Md. #44. Pur. 7/22/1919 for $4600., sold for scrap 1924 for $520.00.
6	4-4-0	Baldwin	1888	# 9263	No data		—	Ex W. Md. #43, Pur. 6/1923 for $3038.94. Sc Emmitsburg 7/1936.
7	2-8-0	Rogers	1890	# 4342	20x24"	50"	— —	Ex Rich & Danville #562, Sou. Ry. #3, Pur. 1926, sc at Emmitsburg.
8	2-6-2	Vulcan	1925	—	16x24"	44"	100000 —	Ex Marion #6, Md & Seacoast, pur. 1936.

Gasoline Car—Universal Motor Co. 12/1920 Pur. for $950.00.

While I secured many notes from newspapers in the Pratt Library in Baltimore, I also secured much information through the kindness of Miss Louise Sebold, the daughter of the former general manager, who, herself, was active in the operation of the Emmitsburg Railroad.

The Monocacy Valley Railroad

By W. R. Hicks

The Monocacy Valley Railroad was constructed during the year 1886 from the Western Maryland Railroad connection at Thurmont, Maryland (Mechanicstown) to the Catoctin Furnace. This foundry was one of our country's early industries. Its location was determined by the supply of brown hematite located in the area.

The original furnace was built in 1774 by four brothers, Thomas, Baker, Roger and James Johnson, upon a tract of land 7000 acres in area, patented in 1770. Many cannon and cannon balls fired by the Revolutionary soldiers were made here. During the Civil War period great prosperity attended the mines and furnace; the ore banks were extended and a coke furnace 12 x 44 feet with a 6000 ton capacity was erected. The ownership of the furnace changed many times until it was taken over by Mr. John M. Kunkel in 1886. He continued to operate and expand the operation up to the time of his death in 1885. As many as three hundred wood choppers and charcoal burners were employed in supplying the furnace with fuel. One hundred miners were on Mr. Kunkel's payroll. At this time about 12,000 tons of pig iron were produced annually. This was considered a large output for any furnace.

The Catoctin Iron Company became the owners of the property after the death of Mr. Kunkel.

To transport supplies to and pig iron from the furnace to Thurmont, Md., six and eight teams of mules would haul sturdy wagons over the dirt roads. This was difficult work in muddy or snowy weather. The great weight provided a real need for the smoothness of the track of a railroad.

In 1886 the Monocacy Valley Railroad Company was organized by those connected with the Iron Works with Dr. Steiner Schley of Frederick, Md. as president. The four mile railroad connecting the Catoctin Furnace with the Western Maryland Railroad was completed the same year. The teams of mules continued to be the source of power until 1898 when a steam engine was secured. The engine took over not only the hauling to and from the Western Maryland but the movement of the standard gage cars about the furnace.

While the Monocacy Valley Railroad was in operation another railroad was being considered by the citizens in the vicinity of Frederick, Md. to be constructed from Washington, D. C. to Gettysburg, Pa. passing over the Monocacy Valley Railroad and the Emmitsburg Railroad. A corporation, with this objective, called the Frederick, Thurmont and Northern Railroad was incorporated by the Legislature of Maryland in 1898. No actual construction was started at this time but several surveys were made and some legal work cleared with the City of Frederick, Md. Parts of this project come alive at a later date.

The year 1900 was one of great activity for the Monocacy Valley Railroad. A narrow gage engine was purchased to haul the cars that

delivered the ore to the washers at the upper level. The washed ore was moved by the standard gage engine to the stock house. These engines replaced the large stable of mules. An arrangement requiring fourteen sidings were built at the furnace to handle the raw material and the finished output. This expansion necessitated the construction of a third siding by the Western Maryland to handle the increased volume of business.

As an indication of this volume, the "Catoctin Courier" issue of June 7th, 1900 states, that the following carloads were delivered by the Western Maryland Railroad to the Monocacy Valley Railroad in the month of May:

Coke	91	
Mdse	2	
Coal	1	
Limestone	23	
Trucks	1	
Total	118	cars

Cars returned to the Western Maryland were 128.

Further expansion was the building of a water plug at the furnace for the locomotives and the appointment of Mr. Howard Hahn as "Conductor."

In April 1900, while shifting a box car about ¼ of a mile from the furnace, the brake chain broke and the car ran down grade as far as the furnace crashing into two loaded cars and doing considerable damage to all the cars involved.

Delays caused by the breakdowns of the standard gage engine caused the management to look about for a replacement. In October 1900, an engine was received over the Western Maryland Railroad and placed in operation as soon as possible. This second standard gage engine was a 38 ton Baldwin locomotive that had come directly from a passenger run on a branch of the Philadelphia, Wilmington and Baltimore Railroad. This engine continued to serve until the line was electrified.

The name of the Frederick, Thurmont and Northern Railroad was changed, in 1902, to Washington, Frederick and Gettysburg Railroad. Interest in the project was revived and surveys made. In 1905, the first section was started from Frederick to Lewistown, Md., a distance of ten miles in the direction of Catoctin Furnace. This construction, completed in 1907, had a maximum grade of 2½% and was laid with new 70 pound rail.

The next step on the part of the Washington, Frederick and Gettysburg Railroad was to purchase the Monocacy Valley Railroad and to build the needed connecting link of three miles between Lewistown, Md. and Catoctin Furnace. This portion, built by J. E. McDonogh & Co., provided a continuous track from Frederick to the Western Maryland Railroad connection at Thurmont, Md. The line from Washington, D. C. to Frederick, Md. and from Thurmont, Md. to Gettysburg, Pa. was never completed.

On December 7, 1907, the Frederick Railroad Company was chartered under the laws of Maryland. Among the railroads absorbed by the Frederick Railroad Company were the Monocacy Valley Railroad and the Washington, Frederick & Gettysburg Railroad. The Monocacy Valley Railroad as a corporation now went out of existence and the operation of the Monocacy Valley Railroad as a separate segment ceased.

The Frederick Railroad had three steam locomotives, one of which came from the Monocacy Valley Railroad. The citizens of Frederick objected strenuously to the operation of the steam locomotives through the streets of the City because of the soot and the frightening of horses. In 1910, the line was electrified and much of the freight and passenger service between Thurmont and Frederick, Md. was handled by the use of the overhead trolley. The steam engines seldom entered the city after this.

The Frederick Railroad had its first wreck of any consequence on August 29, 1912, when an electric car running as a special milk car crashed into a steam locomotive about a mile from Frederick. The report was that the steam engine was running on the time of the electric car but without orders. The crash occurred at the curve near Montview Hospital.

The freight hauls to and from Catoctin Furnace, the reason for the building of the Monocacy Valley Railroad, ceased with the closing of the mines and furnace in 1912.

In a further consolidation, involving more interurban lines in the region, the Frederick Railroad was one of those that became a part of the Hagerstown and Frederick Railroad on March 22, 1923. Control of the new corporation is vested in the Potomac Edison Company. Motors driven by electricity are still hauling a small amount of freight over the roadbed that once was the Monocacy Valley Railroad.

Joseph Stubbs.

Joseph Stubbs

FIRST LOCOMOTIVE ENGINEER
AURORA BRANCH RAILROAD

By A. W. Newton

The following biographical sketch is prepared from information furnished by his grandson, E. W. Copelin, now in the service of the C. B. & Q. R. R., and his nephew, Dr. Edwin W. Stubbs, Long Beach, California.

Joseph Stubbs was born in Nottingham, England, August 3, 1821. Here he served a seven year apprenticeship with a firm manufacturing and installing bell chimes.

In 1842, at the age of 21, he left England for the United States, settling in Schenectady, New York, where he entered the service of a Railroad Construction Company, for which his mechanical training well fitted him. Here, he doubtless began a career of locomotive engineer.

Railroad construction was then active in the West, and 1850 found him at Aurora, Illinois, in the service of the Aurora Branch Railroad just being completed between Turner Junction (now West Chicago) and Aurora. Here he was engineer of the "Pigeon," a 14 ton 4-2-0 engine acquired in October of that year. When the "Rocket," a 19 ton 4-4-0 engine was acquired in 1852, it was assigned to him and he operated it in construction service during the building of the "extension" Aurora to Mendota, which was completed in the fall of 1853. From then until late in 1855 he ran this engine in regular train service.

Being unable to stand the rigorous outdoor life, he resigned from road service and assumed a foreman's position in the Company's new shops, just being erected at Aurora, early in 1856, which position he held until 1858, when he was made foreman in charge of valve motion repairs and construction.

He continued in this capacity until a short time before his death, which occurred June 16, 1891—thus closing a service with the Company of 41 years.

"John Brown" Steel Rail

A MEMORANDUM

By A. W. Newton

Annual Report 1869 (year ending April 30):

The Chief Engineer says:

"The steel rail laid in June, 1867, shows little or no wear. . . . In some places where these rails are laid it has been necessary, heretofore, to replace the iron rails, once in four months.'

Annual Report 1870 (year ending April 30):

The President, James F. Joy, says:

"There are about six miles of steel rail in our tracks. . . . At some points on the road, where the wear of rails is very great, the steel is apparently as perfect as when it was placed in the track, while fifteen iron rails, exposed to the same wear, have been worn out and removed." (Laid in June 1867 and out before April, 1870).

In this same report the Chief Engineer said:

"The steel rail laid down three years ago is still in perfect order, and shows hardly any wear, thus proving unmistakably the economy of this kind of rail."

Annual Report 1871 (year ending April 30):

"Upwards of 78 miles out of 302, have been taken up and relaid during the past year, and it is quitely likely, with the increased traffic, the rail iron will not last three years in the future.

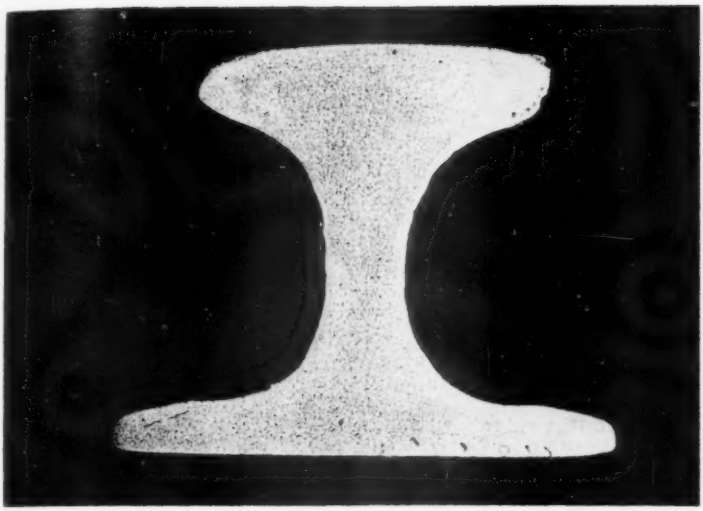
"The test of steel has now been so thoroughly tried by this Company, as well as many others, that all doubts have been removed, and the Board have determined to lay no more iron in the main trunk lines of the road, and in future, all repairs to those lines, so far as the track is concerned, will be by putting down steel instead of iron rail.

"We think that the average life of the steel rail is at least ten times that of iron, and so far as the experiment of this Company is concerned, it proves that this estimate is considerably within bounds.

"Economy therefore demands that the whole main line be laid with steel as fast as the iron gives way, though the steel is much more expensive in the first instance."

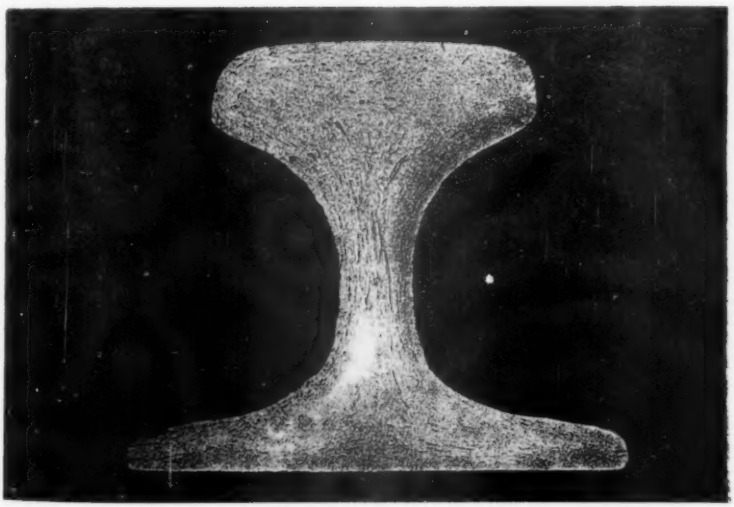
Annual Report 1872 (year ending April 30):

The Chief Engineer states that the excess cost of steel over iron rail was $30.00 per ton.



John Brown—"Atlas."

Old Steel, 1866. 60 lbs. per yard. In use 11 years on Main Line,—Straight Track,—in Galesburg Yard. (Worn Out.)



John Brown—"Atlas."

Old Steel, 1867. 60 lbs. per yard. In use 9 years in Aurora Yard—out side rail of a curve of 2° 30′ radius. 27.98 ft. grade. (Not quite worn out.) 2-19-78.

Aurora Shops about 1870. Note old passenger equipment and old rail fastenings.

Burlington, Sept. 2nd, 1887

Mr. F. W. Sargent

Dear Sir

The rail sent to you by John Sullivan was a "John Brown" laid in 1866, on Buda Hill, in single track; and taken up in 1879, and relaid in Buda yard, in south (double, main) track, where it remained until the Summer of 1883.

J. W. Welch and Levi Close arrived on No. 1 this morning. With regards from

Yours truly,

E. W. Penfield,

Rail Record.

The Whitneyville and Machiasport Railroad*

By Harold S. Walker

This small but interesting railroad in the eastern reaches of the State of Maine was chartered March 3, 1842 as the Franklin Railroad Company by the Boston and Eastern Mill and Land Company which, in turn, had been organized in 1833 for the purpose of doing a general lumber business. The road was built to transport lumber and finished millwork from the company's mill at the dam in Whitneyville to tidewater at Machiasport. It was completed in 1843, at which time the name was changed to Palmer and Machiasport R. R.

The railroad operated under this name until February 8, 1845 when it was shortened to the Machiasport R. R. In 1872 it was incorporated, because it crossed several public highways, and the name was changed again, this time to Whitneyville and Machiasport R. R. This name was retained until the road was abandoned in 1892.

The length of the road was 7.87 miles and the gauge was 4 feet 8½ inches. The track consisted of 8-inch timbers topped with 3 x 4 inch joists and laid on 8-inch hard pine ties. On top of the joists ⅜-inch strap iron, 3 inches wide, was spiked—with 7-inch spikes.

The mill at Whitneyville had six single saws, six lath machines, a shingle machine and a clapboard machine. It ran on a 24-hour basis and eight trainloads of lumber were manufactured daily. Prior to 1866, the yearly traffic on this small and crudely built railroad was approximately 10,000,000 board feet of lumber, 10,000,000 laths, and 1,000,000 shingles. The original cost of the road was $110,000 and its earnings just about offset the cost of operation.

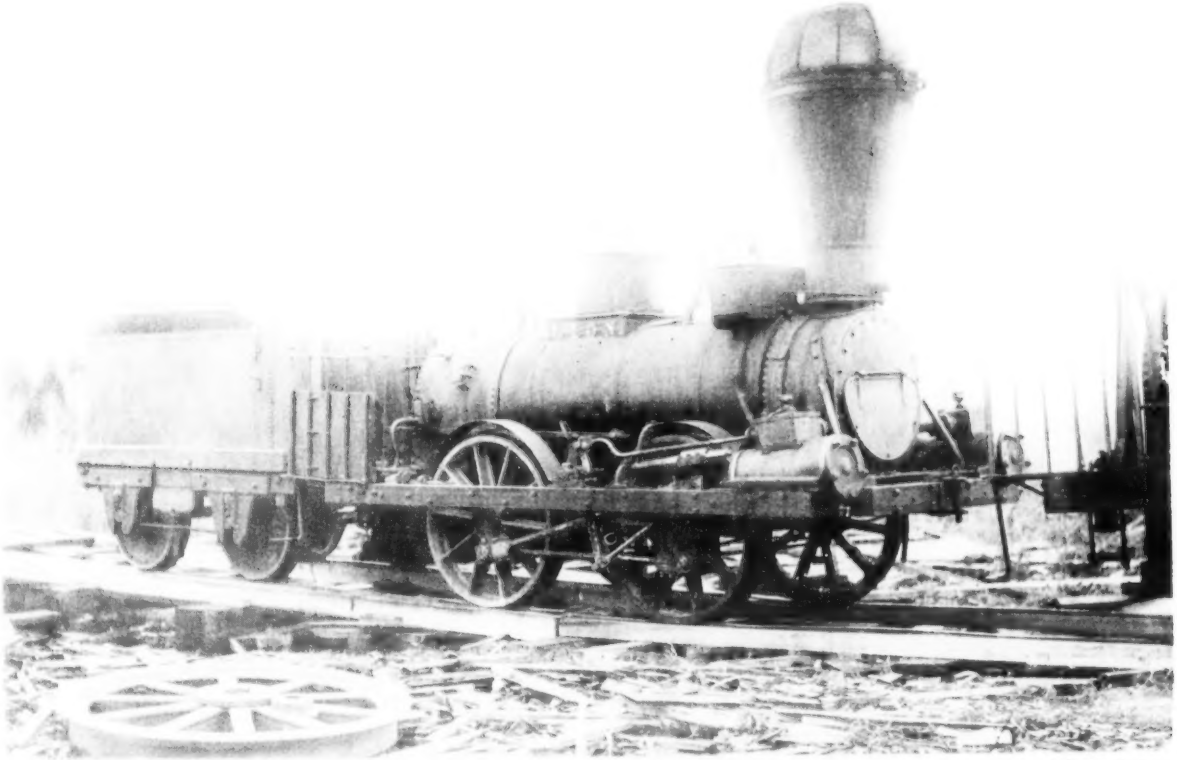
The road owned no passenger equipment and no passengers were officially carried. Free passage was available, however, to anyone who chose to ride at his or her own risk, and the accommodating engineer would always slow down or stop to take or leave passengers who wished to ride the lumber cars up or down the line.

Special trips were sometimes run to convey parties to the 'Port' for sailing excursions or to convey politically-minded individuals to lectures at Machias or the Port—and always free—those who were thus favored not even deeming the services of the crew worthy of a tip. During the fifty years of free transportation, few accidents occurred to the road's patrons, though several employees were killed in various ways while they were connected with the service of the road.

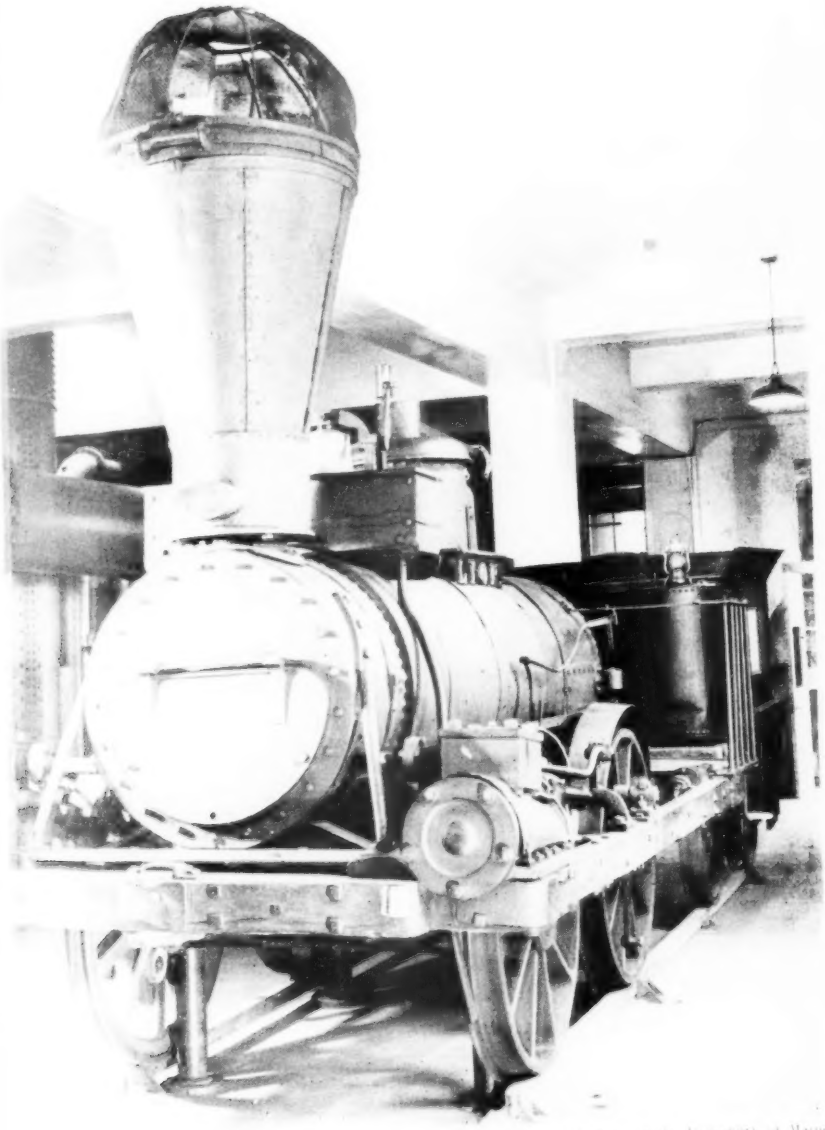
Dana Bullard was the first machinist employed to work on the locomotives and to make occasional runs to the Port. A man by the name of Butler was the first regular engineer. He was followed by Colin

* This story of the Whitneyville and Machiasport R. R. has been prepared from various sources including "Maine Railroads," by E. E. Chase, Portland 1926; Maine Railroad Commissioners' Reports, 1860-1892 incl.; and an unidentified contemporary (1892) newspaper account. The story of the preservation of the "Lion," from its arrival in Portland to the present time has been extracted approximately verbatim from an article by Mr. Joseph H. Cobb which appeared in the Portland, Maine, Press-Herald during the summer of 1947.

Whitneyville & Machiasport (Maine) "Lion" & "Tiger."



The "Kent" of the Wilderville & Mackinaw R. R.



Courtesy of the University of Maine

The Lion. Located in Crosby Laboratory at the University of Maine. This picture was taken in April 1947.

Dorman, who ran only a short time. Michael Corbett ran several years and Samuel Paul, machinist, ran occasionally. Corbett was succeeded by Cornelius Sullivan, later owner of the mill and timberland, who ran for twenty-three consecutive years. Others were Albion Dunning, Edwin K. Smith, John R. Sullivan and, finally, Cornelius Sullivan, Jr., who had a more trying experience and participated in more railroad wrecks than all the others combined.

The first locomotive was a second-hand engine named "Phoenix," built in England and which had been taken by Hinkley & Drury, locomotive builders of Boston, from some railroad in Massachusetts in part payment for a new locomotive. It was loaned to the road pending completion of the "Tiger," ordered in 1841, and was presumably returned to Boston on the arrival of the "Tiger" or its companion, the "Lion."

The "Tiger" arrived at Machiasport by schooner in 1842. It was the sixth locomotive in the State of Maine and the seventh constructed by Hinkley & Drury. It was an 0-4-0 outside-connected engine with drop-hook motion and a combination wood and iron frame. The cylinders were 9 x 16 inches and the drivers were 44 inches in diameter with hubs and rims of iron. The boiler was ten feet long, 38 inches in diameter, and contained 72 copper tubes. The locomotive cost $3000 with tender.

The locomotive was nicely proportioned and balanced. It rode easily and was considered very powerful for its size. When the road was new, the seven-mile return trip to the mill from the wharf with a light train was frequently made in from 15 to 20 minutes. The track seldom permitted such speed, however, and the normal speed was about eight miles per hour.

In 1846 a second locomotive, the "Lion," was purchased from Hinkley & Drury. This was of the same design as the "Tiger" and cost $2700 without tender. Only one engine was used at a time, except for grading purposes or switching. Cars were 4-wheel affairs, eight feet long and six feet wide, designed exclusively for the transportation of lumber.

For half a century these two locomotives, working on alternate days over the heaving roadbed, transported boards and finished lumber from the mills at Whitneyville to the waiting schooners at the Machiasport wharf. Then in the early '90s came the end. The quantity of standing timber in the Whitneyville area fell below profitable operating standards, the lumber business declined and the railroad no longer was needed. This ended the working days of the old "Tiger" and the "Lion" and they were sold to one Thomas Towle, a junk dealer of Portland, for scrap.

The "Tiger" was soon dismantled but the "Lion" was spared a similar fate through the efforts of Alderman Edgar E. Rounds of Portland who arranged for its purchase by the city as a historic curiosity. Strangely enough, in the light of this reprieve from the cold chisel and melting pot, this was the beginning of a period in which the "Lion" was to suffer severe loss of dignity.

After several years of inactivity, the "Lion" took its place in Portland's Fourth-of-July parade in 1898, in the strange company of

floats, marching citizens and military bands. The old boiler was fired up and the parade wound through the streets of Portland with the old "Lion" gasping as determinedly as ever it did back in the woods of Eastern Maine.

However, just as it began to look as though the "Lion" would again do itself proud, something went wrong and the old locomotive broke down. It stopped directly in front of the poorhouse. Humiliated and gathering rust, here the tired old veteran remained for several years until Alderman Rounds reappeared and arranged its presentation to the trustees of the University of Maine at Orono as a museum piece. Again the "Lion" was respectable, but again, its respectability was to be short-lived. It was taken to Orono and placed unattended beneath the bleachers at the football field on the campus.

In 1922, as a part of the program in observance of the University's 100th anniversary, a short section of track was laid across one end of the football field and the "Lion" was used in a pageant, pulling an improvised coach in which rode a student impersonating the first president of the University. This time the "Lion" was pushed by hidden students, and the smoke which rolled convincingly from its screen-covered stack came from a small fire built of green twigs in the old firebox.

This brief public appearance was followed by another long period during which the once proud "Lion" brooded beneath the bleachers. Occasionally an engineering class would inspect it, or a few students gaze at it curiously, but to the "Lion," which had once been one of the wonders of Eastern Maine, this must have been small comfort.

Finally, in 1928, Crosby Hall, which was to house the laboratories of the University's Department of Mechanical Engineering, was completed and the "Lion" was moved indoors. Painted and polished, with wheels jacked off the rails and compressed air piped to its cylinders, the "Lion" now stands in stately and well-deserved ease, the oldest New England locomotive in existence. A turn of the valve admitting air to the cylinders and the old "Lion" is off again with regular "puffs" and "chugs" just as in the days of yore when it dragged its string of lumber laden cars down the heaving track to the waiting schooners at Machiasport.

The Hocking Valley Ry.

By Chas. E. Fisher

The Hocking Valley Ry. had its inception in the Mineral Rail Road Co., that was incorporated April 14, 1864 to build a steam railway from Columbus to Athens, Ohio, a distance of 76 miles. On June 26, 1867, the name of this company was changed to that of the Columbus & Hocking Valley R. R. and this company, under the leadership of Peter Hayden, commenced construction and the road was opened to Athens on July 25, 1870. The road prospered from the start and with a plentiful supply of coal for Columbus and other cities, at lower cost, it soon commenced to expand.

On May 28, 1872, the Columbus & Toledo R. R. was incorporated by the same interests in control of the C. & H. V. R. R., to build a line to Toledo, Ohio, a distance of 124 miles. Construction was delayed by the financial panic of 1874 and it was not until January 10, 1877 that the first regular train ran through to Toledo. Here at Toledo extensive docks were constructed to furnish an outlet for coal to points in Michigan and Canada. On August 20, 1881, these two companies were merged under the name of the Columbus, Hocking Valley & Toledo Ry. Of the five seams of bituminous coal in the state of Ohio, four were on the line of this road and, from the Kanawha & Michigan R. R. it received at Athens coal from the New River districts in West Virginia. On February 25th, 1899, the name was changed to the Hocking Valley Ry.

At the time of this change, the coal properties owned by the C. H. V. & T. Ry. were conveyed to the Buckeye Coal & Ry. Co. which in turn was owned by the Hocking Valley Ry. The road also owned more than 99% of the capital stock of the Toledo & Ohio Central Ry. and all of the securities of the Zanesville & Western as well as a controlling interest in the Kanawha & Michigan which was controlled by the T. & O. C. Ry. This monopoly of coal and the railroads serving that section soon came to the attention of the courts and it was ordered dissolved. The coal properties passed to the Sunday Creek Co., which in turn was owned by the Hocking Valley but the control of the Hocking Valley was placed with the Pittsburgh, Cincinnati, Chicago & St. Louis Ry. (Pennsylvania Lines) (2-6); and the B & O; C & O; L. S. & M. S. and Erie (1-6) each. In March, 1910, the Chesapeake & Ohio acquired a five-sixths interest with a further increase in June, 1911. Control still remains in the hands of the C & O. Control of the Kanawha & Michigan was divided between the L. S. & M. S. and the C & O and the L. S. & M. S. also purchased control of the T. & O. C. and Zanesville & Western Railways. This control was subsequently passed to the New York Central R. R.

The road always gave good service between Toledo and Columbus and the service was made to supplement that of the T. & O. C. rather than to compete even after control of that road had passed to the Lake Shore. In connection with the Chicago & Erie, Columbus was given through service, thus competing with the Pennsylvania Lines. A train left Chicago at 7:45 P. M. with a through sleeper arriving at Columbus

at 7:10 A. M. At Columbus, connection was made with a train to Kenova, W. Va., via the N. & W. R. R. and here a direct connection was made with the C & O for Richmond, Old Point Comfort, Washington, Philadelphia and New York. The sleeper evidently ran through between Chicago and Kenova for there was a through westbound car. But, in the days that I knew the road, it had settled down to three trains each way daily between Toledo and Columbus and through sleeper for Chicago being carried on the night train, delivered to the L. S. & M. S. (N. Y. C.) at Toledo.

The early engines of this road came chiefly from the Rogers Works. They were mainly of the 4-4-0 type and the last of this type purchased from this builder were delivered in 1882. The Brooks Works commenced furnishing engines of this type as early as 1880 and they continued to furnish the majority of the locomotives over the years. During the period the H. V. controlled the T. & O. C., K & M and Z & W roads, groups of engines identical as to construction and details were ordered for and assigned these roads.

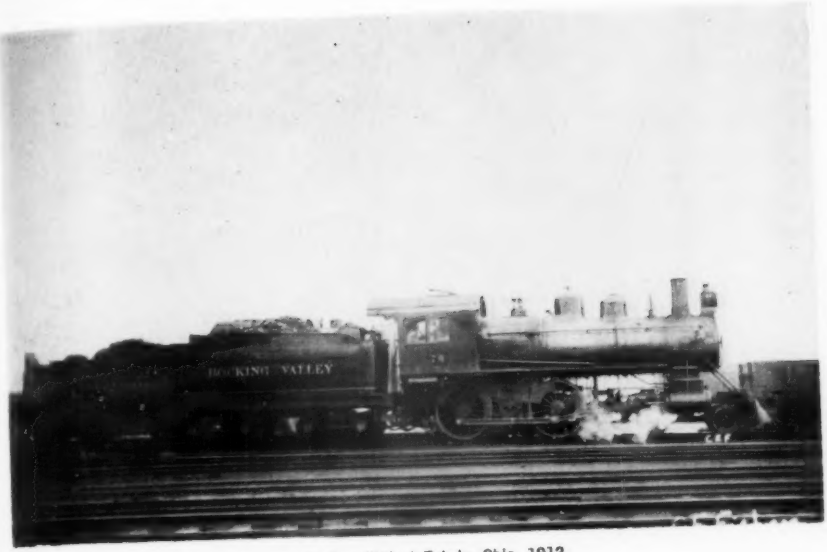
With the numbers scattered and not placed in groups it is somewhat difficult to record the early locomotives without a detailed roster. The 1904 classification shows that Nos. 1-28 were all moguls (2-6-0 type) with 19x24″ cylinders, 55″ drivers and weighed 110000#. Nos. 6-11 had 51″ drivers, Nos. 13-15 were compounds with 19&29x26″ cylinders. With the exception of Nos. 4, 6, 18, 22 and 23, all came from the Pittsburgh Works, 1892-3 and the exceptions came from Baldwin 1890-1.

Nos. 71-76 came from the Brooks Works in 1900 and were high-stepping 4-4-0's with 72″ drivers, 18x26″ cylinders and weight of 128000#. Nos. 77-80, with 66″ drivers were like them and came in 1904. Nos. 81-82 came from the same builder in 1905 with 66″ drivers. No. 83 came in 1905 and Nos. 84-85 came in 1907, all with 66″ drivers. In 1910 the Brooks Works delivered Nos. 86-88, 4-6-0, 20x26″ 72″ 188000# and these were followed in 1912 by Nos. 89-90 with 21x26″ cylinders otherwise same as Nos. 86-88. Nos. 91-92 came from the Richmond Works in 1913 and these were the largest passenger engines owned by the road.

Nos. 96-100 were a group of 0-6-0 switchers from the Brooks Works in 1900, 19x26″ cylinders, 50″ drivers and weighed 113000#. Nos. 101-105 came from Brooks in 1901, 20x26″ 50″; 106-110 from the same builder in 1902, 19x26″ 50″; 111-115 came in 1903 like Nos. 106-110; 116-121 were delivered in 1906, 20x26″ 50″ and Nos. 125-129 came in 1907, 20x26″ 50″ 130000# weight.

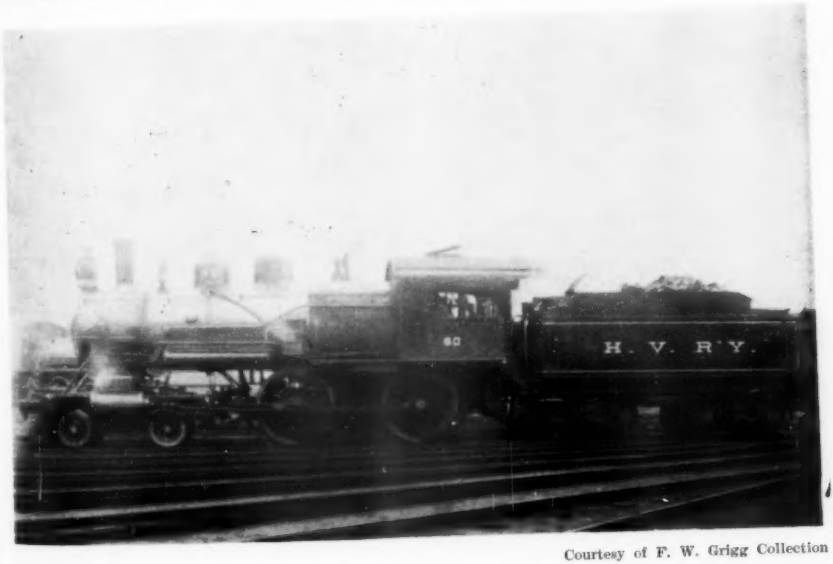
Nos. 130-145 were a group of 2-10-2 type locomotives built originally for the Lehigh Valley R. R. by Baldwin in 1919, 29x32″ cyl., 69″ drivers and weighed 347100#.

Nos. 150-169 were "Consols," 2-8-0 type from the Brooks Works in 1910 with 23x30″ cyl. 57″ drivers and weighed 235000#. These were followed by Nos. 170-179 from the Richmond Works in 1911. The Richmond Works furnished two groups of 2-8-2 type locomotives, Nos. 180-184 in 1912 and Nos. 185-190 with 29x28″ cyl. 56″ drivers and weight of 322500#.



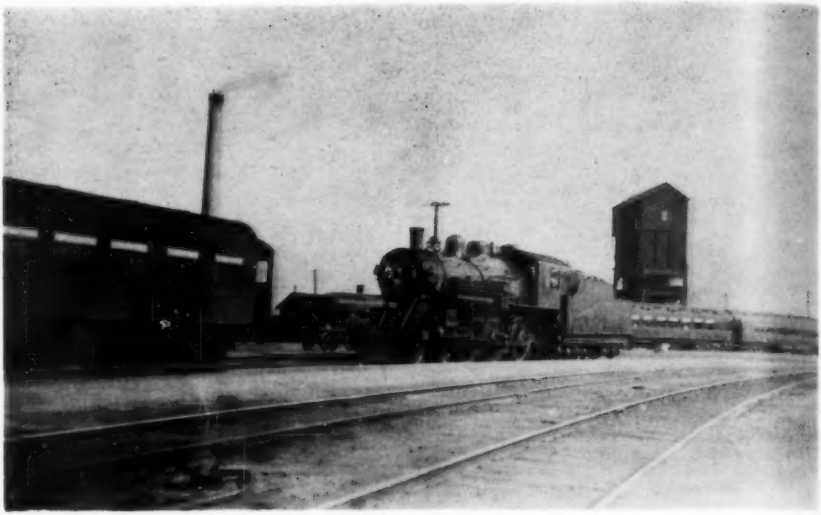
Hocking Valley #76 at Toledo, Ohio, 1912.
Brooks 1900.

The tender in the background is that of an L. S. & M. S. engine with a diaphragm fitted to the rear of the tender to steady it and the train when in motion.

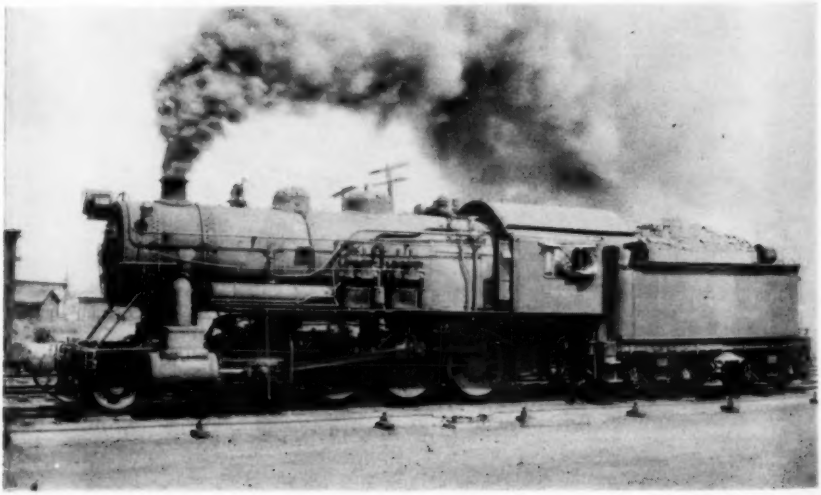


Courtesy of F. W. Grigg Collection

Hocking Valley #80. Brooks 1904.



Hocking Valley #86 at Toledo, Ohio, 1912. Brooks 1910.



Hocking Valley #282. Baldwin 1907

For several years, the standard "coal hauler" was a 20x26″ cyl. 54″ driver "consol" that weighed from 140000 to 162000#. In this group Nos. 200-209 came from Pittsburgh in 1899; 210-224 from Baldwin in 1899; 225-232 from Brooks in 1900; 233-237 from Brooks in 1901; 238-247 from Baldwin in 1902; 248-257 from Brooks in 1902; 258-267 from Rogers in 1903 and 268-277 from Brooks in 1907.

Richmond built Nos. 205-226, a group of Mallets, 2-6-6-2 type with 22&35x32″ cyl., 57″ drivers and weighed 437000#; Schenectady built Nos. 225-239, 0-8-0 switchers, 25x28″ 52″ 236000#.

During the years the Hocking Valley controlled the other lines, there were some exchanges of motive power and some groups of H. V. engines found their way to these roads. The Brooks engines were always noted for their trim lines and altho' I don't know as there was anything outstanding with any of these engines, the passenger trains were always punctual as to arrival at Toledo and the freight engines always had a heavy drag of coal cars behind them.

Worth Reading

compiled by

ELIZABETH O. CULLEN, *Librarian, Bureau of Railway Economics, Association of American Railroads, Washington 6, D. C.*

BOOKS AND PAMPHLETS

Are Transportation Standards Needed in the Atomic Industry? by Frank Tighe. 10 l. 4° New York 22, N. Y. Atomic Industrial Forum—4th Conference Paper No. 57-AIF-65. No price given.

Atlas Shrugged, by Ayn Rand. vii, 1168 p. New York, Random House. $6.95. A novel of how "The Taggart Transcontinental Railroad" was kept in operation.

The Atom and the Railroads, by Edward J. Kehoe. 11 proc. l. 4° Albuquerque, N. M. The Author, c/o Albuquerque Operations Nuclear Products-Erco Div. ACF Industries. Paper at ?th Pan American Railway Cong., Buenos Aires, Argentina, Sept. 12, 1957.

[Australian] *Transport and Communications 1955-56,* by S. R. Carver. Bulletin No. 47, Oct. 1957. 78 p. f° Canberra, Australia, Commonwealth Bureau of Census and Statistics. 5 shillings 10 pence.

Automation and Recent Trends—Hearings, No. 14-15, 1957 before Subcommittee on Economic Stabilization, Joint Economic Committee, U. S. Congress. iii, 100 p. 8° 85th Cong., 1st sess. Washington 25, D. C., Superintendent of Documents, U. S. Govt. Print. Off. 30 cents.

Avoidable Costs of Passenger Train Service—A Report by A Research Committee, Aeronautical Research Foundation, Cambridge, Mass. No price given.

Baltimore and Ohio Railroad Report on Budd RDC Operations, by E. S. Rupp. Address, Oct. 8, 1957. 11 p. Philadelphia 32, Pa., The Budd Co., Public Relations Dept. Free on request.

Canada's Arctic Outlet—A History of the Hudson Bay Railway, by Howard A. Fleming. Berkeley and Los Angeles, Calif., Univ. of California Press. 130 p. Map. $3.50.

Les Chemins de Fer Suisses Après un Siècle 1847-1947. Tome Troisième: Le Materiel Roulant des Chemins de Fer à Voie Normale et à Voie Étroite—Legislation—Organisations—Traités. 621 p. Illus. Neuchatel, Suisse, Delachaux & Niestlé. $8.30. V. I—Généralités—Histoire—Finances—Statistique—Personnel, published 1949; II—Installations Fixes . . . , 1950; IV—Administration—Exploitation et Trafic, 1954.

Daylight Through the Mountain—Letters and Labours of Civil Engineers Walter and Francis Shanley, edited by Frank Norman Walker. 442 p. End-papers Profile of Hoosac Tunnel and Advance of tunnel, Jan. 1, 1872. Map: "Railways, 1850" p. 11, shows lines in northern New York and southern Canada between Richelieu and Rideau Rivers. Montreal, P. Q., Canada, The Engineering Institute of Canada. $6.00.

The Deteriorating Railroad Situation. Jan., 1958 Hearings before Subcommittee on Surface Transportation, Senator George A. Smathers,

Florida, Chairman. Will eventually be printed by U. S. Govt. Print. Office, and for sale by Superintendent of Documents, Washington 25, D. C. Meanwhile summary in Traffic World, Jan. 25, 1958, pp. 23-29, was reprinted by Association of American Railroads with title: *The Story of the HEARINGS . . . Jan. 13-17, 1958.* Copies free on request to A. A. R., Transportation Bldg., Washington 6, D. C., as well as another summary title: *Senate Subcommittee* Hearings on the "Deteriorating Railroad Situation." Cover-title, 34 p. 8°. Copies of Statements of the railroad presidents who testified may be obtained from:

Daniel P. Loomis, President, A. A. R., Washington 6, D. C. 45 proc. 1. 4°.
Ernest S. Marsh, President, A. T. & S. F. Ry., Chicago 4, Illinois. Cover-title, 37 p. 8°.
Patrick B. McGinnis, President, Boston & Maine Railroad, Boston 14, Mass. 15 proc. 1. 4°.
H. C. Murphy, President, Burlington Lines, titled: "A Realistic Look at the Railroads." Chicago 6, Illinois. Cover-title, 18 p. nar. 8°.
James M. Symes, President, The Pennsylvania Railroad Co., Philadelphia 4, Penna. 2 v. 4° and f° "U. S. Department of Transportation" proposed.
Walter J. Tuohy, President, Chesapeake and Ohio Ry., Cleveland 1, Ohio. 8, 1 proc. 1. 4°.

Directory of Railway Officials & Year Book 1957-1958, compiled from official sources under the direction of The Editor of "The Railway Gazette." 534, 221 [adv.] p. 8° London, Eng., Tothill Press Ltd. 40 shillings. 63rd year of publication. ". . . all the countries in the world (other than Great Britain and Ireland) in alphabetical order" . . . with names of railroads in English, followed by official names in "native languages"; office addresses; historical sketches of larger systems; financial summaries for latest date available; mileages and gauges [some have 3 gauges]; locomotives and rolling stock, and names and addresses of officers through "Divisional Managers." "Statistical and Other Information" pp. 373-486 includes: "Development of World's Railway Mileage"; "Principal Electrically-Operated Railways"; "Steepest Gradients"; "Some Noteworthy Bridges and Viaducts"; "Principal Altitudes on World's Railways"; "Right and Left Hand Running" by countries and continents; "Long Stretches of Straight Lines"; "Some Typical Loading Gauges"; "Automatic Brake System on World's Railways"; "Railway Speed Records"; "*Preservation of Historic Locomotives and Rolling Stock. 1. On Non-Railway Property. 2. On Railway Property* [in Britain]; "Brief Chronology of Railway History" and "Railway Bibliography."

The Eastern Rail-Road Company 1835-1884, by Charles J. Kennedy. pp. 92-108. Boston 63, Mass., The Business History Review, $1.75. Reprint from Review's Spring and Summer issues, 1957.

Eighty Years of Transportation Progress—A History of the St. Louis Southwestern Railway, by Jacob E. Anderson. Revised ed., 1957. 98 p. Illus. Map. Tyler, Texas, St. Louis Southwestern Ry. Public Relations Dept. Distributed in lieu of October 1957 issue of Cotton Belt News.

Far and Fast, by L. K. Sillcox. 17 p. 4° New York 17, N. Y., The New York Air Brake Co., 230 Park Ave. Free on request. Talk at Yale University, Jan. 9, 1958. "When one views, as a whole, a map of the railways in the United States and Canada it gives an impressive account of their complete overall coverage of the area. It shows further that they can go Far and can also go Fast if they will only carefully coordinate and definitely schedule their movements to effectively meet present-day demands and be in a position to administer their service to the point of specifically designating delivery of shipments. . . ."

Federal Expenditures for Transportation, by Burton N. Behling. 17 mimeo. 1. 4° Washington, D. C., A A R, Bureau of Railway Economics. Free on request. Paper submitted by invitation to Subcommittee on Fiscal Policy, Joint Committee, U. S. Congress, which is studying Federal expenditure policy for economic growth and stability, in November 1957.

Golden Reunion, Survivors of Madeira-Mamoré [railroad construction] *Expedition* [in Brazil], *1907-1913, Washington, D. C., Oct. 4-6, 1957,* cover-title, 20 p., incl. Illus. and Maps. Mount Vernon, N. Y., Frank W. Kravigny, Historian, 280 Collins Ave., 2A. No price stated.

The Grand Trunk Railway of Canada, by A. W. Currie. 556 p. Toronto, Canada, University of Toronto Press. $9.00.

The Human Side of Railroading, by Carlton J. Corliss. Jan. 1958 Revised Edition. 16 p. Illus. 8° Washington, D. C., A A R Public Relations Dept. Free on request.

Illinois Institute of Technology. President's Report for the year ending August 31, 1957, by John T. Rettaliata. 61 p. Illus. Chicago, Ill., Technology Center, 3000 Federal Street. On map, pp. 32-33, Nos. 32-34, are AAR Administration, Mechanical Engineering and Laboratory Buildings. ". . . The engineering laboratory . . . was completed in July, . . ." p. 42.

Improved Motive Power Utilization. Railway Systems and Procedures Association 1957 Fall Meeting Proceedings, Chicago, Ill., Oct. 8-10, 1957. iv, 163 p. Illus. Washington 2, D. C., The Association, 357 Union Station. $5.00.

International Railroads' Weighing Corporation Introduces Railweight. 20 p. 8° Hammond, Indiana, The Corporation. 415 Spruce St. Free on request. ". . . The revolutionary Marden Method of coupled-in-action freight car weighing."

Interstate Commerce Commission. 71st Annual Report for the fiscal year ended June 30, 1957. iii, 189 p. 8° Washington, D. C., U. S. Govt. Print. Off., 1957. $1.50. ". . . With this report, we are changing the reporting period to a Government fiscal year basis—July 1 to June 30—whereas our reports in the past have covered the 12 months between November 1 and the succeeding October 31. . . ." p. 1. "Highlights In Transportation During the year" pp. 2-30. "Rate Proceedings and Other Rate activities" pp. 30-42. "Operating Authorities" pp. 42-50 includes railroad abandonment authorizations. "Unifications, Securities, and Reorganizations" pp. 50-60. "Service, Facilities, and Operating Efficiency" pp. 60-81, includes piggyback, roll-on-roll-off trailership and

fishyback services. "Progress in Operational Improvements" on railroads, mentions "ribbonrail," C.T.C., and oil-burning gas turbine locomotives, as well as "some of the low-slung, streamlined trains" and "dome cars." ". . . Although the railroads benefited from inventions and improvements, they were adversely affected by destructive storms, floods, and other forces of nature, as well as by fluctuating business conditions, and by work stoppages, both in industry and, to a limited extent, on the railroads. (See also Labor-Management Relations) . . . p. 66. "Car Ownership and Condition of Cars . . . Utilization of Equipment" pp. 72-78. "Promotion of Safety in Transportation" pp. 81-103, includes "Transportation of Explosives and Other Dangerous Articles" pp. 89-90. "Legislation and Legislative Activities" pp. 133-151.

Ex Parte No. 212. Increased Freight Rates, 1958. Decided February 11, 1958. *Order* Served February 12, 1958. 31, 5 processed sheets. f°. ICC Reports.

"This proceeding is an aftermath of Ex Parte No. 206 in which the Commission in its report of August 6, 1957, 300 I. C. C. 633, approved certain increases in freight rates and charges to cover certain definite increases in expenses . . . We find: 1. There is a critical need on the part of the railroads for additional revenue, sufficiently at least to offset cost increases not heretofore considered by us in approving increases in their freight rates and charges. The public interest, and that of the National Defense, in a sound, adequate and efficient transportation system, will be adversely affected unless the proposed increased interstate freight rates and charges, with the exceptions noted below, are permitted to become effective as scheduled [Feb. 15] . . ."

Is U. S. Railroad Industry Dying? by Hal Thompson. Chicago American, 326 W. Madison Ave. No price given. Reprint of articles in Financial Columns, Dec. 5-7, 1957.

Isambard Kingdom Brunel—A Biography, by L. T. C. Rolt. xiv, 345 p. Illus. London, New York, Toronto, Longmans, Green & Co. $4.00. ". . . He has his statue in marble; every boy's railway book refers to him; we may have seen his name engraved upon that great bridge at Saltash which is the gateway to Cornwall; we may know of him as the over-ambitious author of the broad gauge or of that premature giant among ships, the *Great Eastern;* perhaps we can only remember him by virtue of the evocative overtones of that remarkable name, . . . But what sort of a man was this Brunel? That is the question which this book tries to answer. . . ."

Japanese National Railways—A Yearbook of JNR Information 1956-7. Cover-title, 64 p. incl. illus. and maps. 12°. Marunouchi, Tokyo, Japan, Japanese National Railways. Free on request. Dated November 1957. ". . . The fiscal year of JNR extends from 1st April to 31st March of the following year . . ." *1,* in "Explanatory Remarks" p. 1.

Jay Gould—His Business Career, 1867-1892, by Julius Grodinsky. 627 p. Philadelphia, Pa., University of Pennsylvania Press. $10.00.

Laws Relating to Interstate and Foreign Commerce, compiled by Gilman G. Udell, superintendent, Document Room, House of Represen-

tatives. 712 p. Washington, D. C., U. S. Govt. Print. Office—Superintendent of Documents Office. $3.25.

List of Coal and Coke Operations on the Norfolk and Western Railway—Carrier of Fuel Satisfaction No. 20, December 1, 1957, cover-title (in color), 24 p. 4°. Folded map in color showing entire coal producing area served by N & W. Roanoke, Virginia, N & W Coal Bureau. Free on request.

Malayan Railway Administration, Kuala Lumpur, Malaya. Annual Report for the year 1956. C. G. Harrison, chairman and general manager. 119 p., illus. Map in color. London, Eng., Printed for the Malayan Railway Administration by Daniel Greenway & Sons, Ltd., 1957. Price: $5 (M.)—12/6d. ". . . The revenue earned exceeded the record revenue of the previous year by $9.85 million or nearly 15 per cent. The increase was due mainly to higher rates and a larger volume of rail and port goods traffic. The tonnage of goods conveyed by rail was the highest ever recorded . . . (p. 14). It must be emphasized however that the full advantage of more economical methods of operation and the optimum improvement in services cannot be gained so long as the 'Emergency' continues to frustrate the efficient deployment of motive power, manpower and equipment. Communist terrorist attack at night remains a constant danger. The few night trains that it is practicable to run must be safeguarded by armored railcars on patrol or acting as pilots. . . . What these abnormal costs amount to in the year cannot be accurately assessed. . . ." (pp. 15-16).

MONORAILROADS—List of books and periodical articles in BRE Library, March 29, 1944 [*re-run*] . . . *Supplement, Dec. 5, 1957.* 10,9 proc. 1. 4°. Washington 6, D. C., AAR BRE Library. Free on request. A growing subject, references later than Dec. 5, 1957 will be furnished on request.

One Hundred Years of Steam Locomotives, compiled and edited by Walter A. Lucas. x, 278 p. Illus., Diagrams. New York 7, Simmons-Boardman Publishing Corporation. $——. Contributing editors: Paul Needham, C. L. Combes, C. A. Phelps.

Pakistan North Western Railway—Year Book of Information 1957. 72 p. Illus., Map. Lahore, Pakistan, N. W. R. Headquarters Office, Empress Road. Free on request.

Pan American Railway Congress, 9th, Buenos Aires, Argentina. Proceedings and Papers—"Documents" 1957. More than a thousand indexed by serial numbers and some subjects for reference use in BRE Library. General description of Congress in Ingeneria Ferroviaria, Buenos Aires, Numero Especial, Julie-Agosto, 1957, pp. 65-108. Maps and illustrations.

[*Proposal for a self-supporting Federal agency to lease rolling stock to the railroad industry, accompanied by a proposal covering creation of* governmental agency for financing railroad equipment] by James M. Symes. [6] proc. 1. 4° [Philadelphia, Pa., 1957]. Presented to House Committee on Interstate and Foreign Commerce July 24, 1957 by President of The Pennsylvania Railroad. Summaries in Traffic World, July 27, 1957, p. 25; Railway Age, July 29, 1957; pp. 11-12; Nov. 4, 1957, pp. 30-33. "The U. S. Railway Equipment Agency."

Public Transportation for New England—A Series of Reports to the New England Governors' Conference by the New England Governors' Committee on Public Transportation, March 1955-November 1957, Reports 1-10. Separately paged. Boston 16, Mass., New England Governors' Committee on Public Transportation. No price given.

The Railroad Passenger Car, by August Mencken. 209 p. Illus. Baltimore, Md., The Johns Hopkins Press. $5.00. " . . . adapted" under title: *The Glory of the Railroad—There wasn't any idea too daring or far-fetched for the men who designed trains and their rolling stock in the early days,* (The Johns Hopkins Magazine, December 1957, pp. 6-9, 20, 22-24. Illus.)

The Railroad Passenger Deficit Problem—1957 Report, by Special Committee on Cooperation with the Interstate Commerce Commission in the study of the Railroad Passenger Deficit Problem, to National Association of Railroad and Utilities Commissioners, Memphis, Tenn. [convention], October 31, 1957. 50 p. Washington 4, D. C. P. O. Box 684 [NA RR & Util. Com'rs]. No price stated.

Railroads—Freight—Routing—Transcript of cards in BRE Library catalog, Jan. 21, 1958. 24 proc. l. 4° Washington 6, D. C., AAR BRE Library. Free on request.

Railroads in Alabama Politics, 1875-1914, by James F. Doster. viii, 273 p. 9 maps by Robert W. Small. Tuscaloosa, Ala., University of Alabama Press. No price stated. University of Alabama Studies, No. 12.

Railroads in the United States—Annual Reports to the Stockholders —List of Reports on File in the Library, prepared by Harry L. Eddy, assistant reference.

Railway Car Builders of the United States and Canada, by E. Harper Charlton. 94 p. Illus. Los Angeles 6, Calif., Interurbans, 1416 So. Westmoreland. $3.00.

Railway Development in Italy, by Bureau of Foreign Commerce, U. S. Dept. of Commerce. World Trade Information Service. Part 4. No. 57-13, *Utilities Abroad,* Sept. 1957. Map of Italian Railways, p. 3. Private Rys., pp. 8-10. Washington 25, D. C., U. S. Govt. Print. Off., Superintendent of Documents. 20 cents.

Railway Mileage by States, December 31, 1956. 63 proc. l. Washington 6, D. C., A A R Bureau of Railway Economics. Free on request.

Regulation of Rail-Motor Rate Competition, by Ernest W. Williams, Jr. ix, 247 p. New York, Harper & Bros. $4.50. " . . . The First comprehensive study of the regulation of rail-motor rate competition . . . " (Harper & Bros.)

A Review of Railway Operations in 1957, by J. Elmer Monroe. 43 p. 8° Washington, D. C., A A R Bureau of Railway Economics Special Series Bulletin, No. 92.

Rights of Trains, by Peter Josserand. *5th ed., 1957.* 459 p. New York 7, N. Y., Simmons-Boardman Publishing Corporation. $6.00. " . . . The late Harry W. Forman, assistant to the vice-president and general manager of the Western Pacific Railroad, was one of the first to recognize the need for a book of this kind. His First Edition, *Rights of Trains on Single Track,* was privately printed in 1904. Recognized

as a national authority on train rules, he developed the principles of many of our present-day rules. It is with humbleness of spirit that I have stepped into the shoes of this great rules man to carry on his work.

Because of an ever-increasing percentage of rail lines being operated under some form of signal control, this edition has been expanded to include Block Signal and Interlocking Rules, in addition to Operating Rules. These rules will be found to differ from the Standard Code in some cases and to carry from road to road. Also, types of signals may vary from the semaphore of ancient vintage to the Pennsylvania's color-position light signals.

The rapid adoption of Centralized Traffic Control has necessitated the writing of special rules which are not uniform. 'Traffic control,' as it has been officially designated to get away from the trade name, is tailor-made to the exact requirements of each property and the rules are altered to fit the installation . . . '' Foreword, p. viii.

. . . ''Listed below are the railroads, large and small, whose rules are included in the latest comparative study for this edition: . . . [35 railroads]'' Foreword, pp. ix-x.

Selected Reading List of Books Helpful in the Study of the Principal Laws within the Jurisdiction of the Interstate Commerce Commission. Third and Revised Edition, 1957. Washington 25, D. C. Association of Interstate Commerce Commission Practitioners, 1112 ICC Bldg. 75 cents.

Soviet Transportation Policy, by Holland Hunter. xxiii, 396 p. graphs. Cambridge 38, Mass., Harvard University Press. $8.50.

Steel—The Metalworking Weekly—1958 Metalworking Yearbook and Planning Guide, Jan. 6, 1958. 514 p. including advertising. Cleveland 13, Ohio, The Penton Publishing Co. $2.00.

Survey on Trailer-on-Flat-Car Service and Operation. December 1, 1957, cover-title, 43 proc. 1. 4° Chicago 5, Ill., A A R Freight Station Section, W. E. Todd, secretary, 59 E. Van Buren St. Free on request.

Transportation of Radioactive Materials, by Victor I. Gruber. Address May 28, 1957 to Washington Chapter, Delta Nu Alpha. 11 proc. 1. 4° Summary, with illustrations, in Traffic World, June 8, 1957, pp. 35-38.

Transportation Research—A Survey of Current and Potential Transportation Research Subjects. 30 p. Washington 6, D. C. Transportation Association of America. 1001 Connecticut Ave., N. W. Free on request.

User Charges on Inland Waterways—A Bibliography of Material in the Library . . . February 10, 1958. Cover-title, 13 proc. 1. 4° Washington 6, D. C., A A R BRE Library. Free on request.

World Railways 1956-57. Fourth Edition—A Worldwide Survey of Railway Operation and Equipment, edited and compiled by Henry Sampson. x, 502, 83 [adv.] p. incl. Maps, Illus., Diagrs. (clearances), Tables. f° London, Eng., Sampson Low's ''World Railways'' Ltd. 4 pounds 4 shillings. '' . . . new features. . . . there are brief surveys of developments of special interest which illustrate a factor that is progressively more important. . . . and that is the application of scientific principles and research to the design of railway equipment.

In the section dealing with railways there have been two notable exceptions—U.S.S.R. and China—to the general disinterestedness of the Communist countries. The details of the Soviet Railway System, running to 7 pages with 24 new illustrations, are based on information received from Moscow. . . . The information received from Peking . . . gives an indication of what the Chinese Republic Railways have achieved in the last six years. . . . " Foreword p. iii.

The Year's Work. Annual Report of The Association of American Railroads 1957. Cover-title, 68 p. Illus. Map of locations of general offices, field offices, division offices, bureaus—railway economics and explosives, and BRE Library. Washington 6, D. C., Association of American Railroads. Free on request.

ARTICLES IN PERIODICALS

El Aerotrén está en México. Revista Ferronales (Mexican National Railways), December 1957, pp. 58-60. Illus., Map.

Antarctica . . . The Tractor Train which took Sir Edmund Hillary to Depot 700 and then, minus one vehicle, on to the South Pole. Illustrated London News, January 18, 1958, pp. 90, 92. Illus. The caboose, p. 92.

Are Transport Men Educated Enough?—Need for deeper thought and inspiration, by Sir Reginald Wilson, Modern Transport, London, Eng., Oct. 19, 1957, pp. 3, 11. Editorial comment p. 2.

L'Avenir du Chemin de Fer Transsaharien, by Paul Depret, director general, Mediterranean-Niger Ry. La Vie du Rail No. 620, 10 Nov. 1957, pp. 14-17. Map and Illus.

The British Iron and Steel Industry—A Survey of a Major Industry from 500 B.C. to 1958. Illustrated London News, Jan. 18, 1958 —Special Section, pp. 95-98. Illus. and Maps, part in color.

Die Britischen Eisenbahnen im Zweiten Weltkrieg 1939 bis 1945, by Wehde-Textor. Archiv für Eisenbahnwesen, 1957. Heft 4, pp. 429-59.

The Completely Automatic Classification Yard, by John W. Hansen. Railway Club of Pittsburgh Official Proceedings, Nov. 1957, pp. 28-36. " . . . Mechanization of classification yards is not new. . . . Completely automatic classification is new. . . . The system I will describe for you tonight is the result of the efforts of my company [Union Switch & Signal] after spending half a million dollars and approximately 50 man years in its research and development. We now have available a means of automatically classifying cars in a freight classification yard, requiring the push of a single button to classify one entire train. . . . "

The Conductor & Brakeman, 75th Anniversary Edition, Jan. 1958. Cover-title, 40 p. Illus. Cedar Rapids, Iowa, Order of Railway Conductors & Brakemen.

Danish Railways: A Comparison with New Englanders, by Southworth Lancaster. Boston University Business Review, Fall 1957, pp. 23-35. Map.

Design of the Mokameh Ganges Bridge. The Railway Gazette, Jan. 17, 1958, p. 65. *Foundations, Piers and Superstructures,* pp. 72-74, with Plans of Wells, Section Elevations, and Illus. " . . . Altogether, the bridge has 14 spans of 403 ft. 4½ in., plus four land spans each of 104 ft. 9 in., two at each end, the length being between centres of bearings. . . ."

Developments on the Chinese Republic Railway. The Railway Gazette, Jan. 10, 1958, pp. 42-45. New construction, improvements in rolling stock and in operation. Illus. Map showing connections with neighboring countries and lines under construction.

EUROP AN 1—Euratom, clé de la puissance énergétique européenne, by Louis Armand, p. 28.—*Le transport devant l'unification européene,* by H. C. Seebohm. Transmondia—Le Revue de Tous les Transports, No. 40, Jan. 1958.

The First Five Year Plan for the Modernisation and Development of the Italian State Railways, by G. Santini, chief engineer. Bulletin of the International Union of Railways, Sept.-Oct. 1957, pp. 267-272.

Grand Junction's Diamond Jubilee—From Cottonwood Trees and Sage to Luxuriant Valley, by Joe Martin. Rio Grande Green Light, Sept. 15, 1957, pp. 1, 10. Illus.

How To Get On Top of Your Competition—Polar Past—Polar Present [of Scandinavian Air Lines]. Industria International, Stockholm, Sweden, 1957-58, pp. 33-35, 100-106, 136. Illus., ports. Map showing short cut across North Pole.

Interchanging Van Containers between Highway and Rail Carriers, by Herbert H. Hall. Modern Materials Handling, Feb. 1958, pp. 130-135, 152. "A universally acceptable system is needed. . . . "

Introducing a New Wallpaper with Railroad Motif. B & O Magazine, Jan., 1958, covers reproducing the wallpaper, and inside front cover. " . . . is not a B&O project . . . Designed by Walter F. Buehr, and adapted from the jack of his recently-published book, 'Railroads —Today and Yesterday', the wallpaper was created by F. Schumacher & Company . . . Readers interested in purchasing this interesting wallpaper, may write . . . F. Schumacher & Co., at 60 West 40th Street, New York 18, N. Y., for further information on where it is being sold."

Keeping Track, Vol. 1, No. 1, January 1958. R. M. Shaw, Editor. Montreal, P.Q., Canada, 384 St. James St. W. " . . . This is the first issue of your new magazine, in its new dress and with its new name . . . " Formerly: Canadian National Railways Magazine.

Kellock Royal Commission Report on Employment of Firemen on Diesel Locomotives in Freight and Yard Service on the Canadian Pacific Railway. Ottawa, Dec. 18, 1957. Canadian Pacific Spanner, Feb. 1958 Special Supplement. Cover-title, 15 p. 4°.

Let's Look Ahead and Stay Ahead, by Holcombe Parkes. Pacific Railway Club Proceedings, March 1957, pp. 13-20.

The Lincoln Among the Vice Presidents. Illinois Central Magazine, Feb. 1958, pp. 10-12. Portrait in Law Department offices of the railroad.

Looking Ahead at 1958—Railroads—Highway Transportation—Municipal and Utility Use—General Industry—Petroleum—Mining

Operations—Construction Equipment—Agriculture. Diesel power, Jan. 1958, pp. 16-22.

Modern Railroads Annual Special Report to Railroad Management, Jan. 1958. "1958:—Crucial Year for the Railroads," by Frank Richter, pp. 75-78; . . . "Outlook for Freight" by Nancy Ford, pp. 80-81; "Railroad Legislative Picture Bright . . . " by Harry Tennant, pp. 83-86; "Railroad Improvements 1957 . . . Plans for 1958" by Bert Enos and Nora Sampson, pp. 89-143; "Freight Service—Leadership Needed" by Tom Shedd, Jr., pp. 145-150; "Motive Power Fleet—Today and Tomorrow" by Homer A. Alpha, pp. 152-157; "M/W Faces Big Challenge in 1958" by Edward T. Myers, pp. 159-164. *Reports from Europe,* by Robert Spark, pp. 33-34. *Reports from Washington,* by Harry L. Tennant, p. 27.

Neerlands eerste Spoorweg-tunnel in gebruik. Nieuw Spoor, Utrecht, Netherlands, October 1957, cover, photo, pp. 3-5.

Neuartige Strassenfahrzeuge für den Huckepackverkehr—Ein Versuch der DB, by Hans Schäfer. Eisenbahntechnische Rundschau, Darmstadt, Germany, Dec. 1957, pp. 468-473. Diagrams. For piggyback service, German Federal Railways have designed prototype road vehicles, from which running gear is detached during rail transport, thus permitting larger loads.

Das neue Eisenbahn-Hochsee-Fährschiff "Theodor Heuss" der Deutschen Bundasbahn, by Friedrich Flemming. Eisenbahntechnische Rundschau, Darmstadt, Germany, Dec. 1957, pp. 447-460. Illus., plans, diagrs.

The new Refrigerating Wagons for European Refrigerated Traffic, by Ernest Schröeder. International Railway Congress Association Monthly Bulletin, Jan. 1958, pp. 10-34. Illus.

1957 Review—1958 Outlook—Staff Report to Management. Railway Age, Jan. 20, 1958. 144 p. Illus. " . . . RRs Vie with Sputnik in Congress" pp. 21-22.

Now—A Specialized Car for Tin Plate. Elgin, Joliet & Eastern, Working with Various Steel Companies, Has Developed Equipment to Handle It, and New Ways to Ship it. Railway Freight Traffic, Feb. 1958, pp. 23-24. Illus.

Nuclear Power, by J. F. Wilkes. Canadian Railway Club. Official Proceedings, Sept. 9, Oct. 7, 1957, pp. 10-46.

Un Neuvo Ferrocarril—El Señor Presidente Inaugura Le Rehabilitación Total del Ferrocarril del Pacifico [Nov. 4, 1957 at Hermosillo, Sonora, Mexico]. Revista Ferronales, Mexican National Rys., Dec. 1957, pp. 50-56. Illus. "Antecedentes" 1880-1954, pp. 53-54.

Organization and Operation of the Military Traffic Management Agency, by Maj. Gen. E. C. R. Lasher. New York Railroad Club Official Proceedings, Oct. 17, 1957, pp. 185-199. " . . . specialty type of equipment, that would be handled by equipment that is not available now in common carriers? Have you a research and development group to achieve a means of carrying what you have to carry?" [Answer by General Lasher]: "We do have such an organization. The Military Traffic Management Agency does not, but the Transportation Corps of

the Army does. It is located at Fort Eustis, Virginia. It is called the Transportation Research and Engineering Command. . . . It goes into all types of unconventional means of transportation . . . Some are Buck Rogers, and some aren't. Some were Buck Rogers yesterday, and are realities today, . . .

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[*Quebec, North Shore & Labrador Railway Company*]—*Report of Five Years' Operations at Fifty to Fifty-Five North Latitude,* by J. A. Little, general manager. New England Railroad Club Official Proceedings, Nov. 13, 1957, pp. 100-106.

Railroad Equipment Makers Speed Diversification to Offset Slump . . . Rebuilding Locomotives. The Wall Street Journal, Feb. 4, 1958, p. 24.

Railroading '58. The Issues I-III. Railway Progress, Jan. 1958, pp. 5-43. "II. Freight Cars" Illus. "III. Preventive Medicine: Can Congress Fill the Prescription?"

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A Scientist Looks at the Railways, by Dr. O. M. Solandt. Canadian Railway Club Official Proceedings, Dec. 9, 1957, pp. 5-24.

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Swedish Lightweight Train, by S. H. Bingham. Railway Gazette, Jan. 3, 1958, pp. 17-19. "KLL prototype 1,020-h.p. seven-coach set with unusual features." Illus. and Drawings.

Ten Years of the Pakistan Railways, by A. Berlas. Rail Times [Pakistan], August 1957, pp. 13-21.

Track Open to Chibougamau—Push Work on Last Section. Canadian Transportation, Nov. 1957, pp. 49-51. Illus. Map. ". . . Canadian National trains began regular service to northern Quebec mining and lumbering centre on Oct. 7. Line to St. Felicien to open in 1959."

Transport in Parliament. Railway Gazette editorial, Jan. 17, 1958, p. 63. ". . . It is with the position of [British Transport] Commission that Parliament will be mainly occupied during the coming months as far as transport matters arise. . . ."

Transportation, by Wilfred Owen. Annals of the American Academy of Political and Social Science, Nov. 1957, pp. 30-38. ". . . Looking backward from the city of 1892 to the late 1950's we are struck by the tremendous progress that has taken place in transportation . . ."

El Transport Ferroviario en Rusia y las Perspectivas de su Desarrollo, by V. Garnyk, vice-minister of communications, USSR. Revista Ferronales, Mexico, Oct. 1957, pp. 62-64. Illus. "En exclusiva para Ferronales." ". . . En 1957, la intensidad del tráfico de carga en las líneas férreas de la U. R. S. S., es tres veces superior a la de los Estados Unidos and ocho veces a la de los ferrocarriles ingleses y franceses. . . ."

L'Utilisation des Moteurs Diesel dans la Traction sur Voie Ferrée, by M. Tourneur. Revue Générale des Chemins de Fer, Oct. 1957, pp. 553-562. Illus., Diagrs. Table of chief characteristics of General Motors, Fairbanks, Napier, Baldwin, Sulzer, Alco, SACM (MGO), Saurer, RNUR, Daimler, Maybach, SGCM, diesel traction motors, p. 555. "Les Transmissions" pp. 555-558.

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What Kind of Railway History Do We Want? by Michael Robbins. The Journal of Transport History, Leicester Univ. Press, England, Nov. 1957, pp. 65-75.

What's the Outlook for Prices? [of railroad materials] Railway Age, Feb. 17, 1958, pp. 9-10. "Railway Materials Price Index: . . ." p. 9.

While Russians Are Rushing Track . . . We're Ripping It Up. Railway Age, Dec. 9, 1957, pp. 16-17. Illus.

New Books

The Manchester and Oneida Railway, by Frank P. Donovan, Jr. 54 pages, 7⅞x5⅜. Illustrated. Published by The State Historical Society of Iowa, Iowa City, Iowa. Price $2.00.

Born in the twentieth century, this little road connecting the two towns in its corporate name was opened on the Fourth of July, 1901 amidst a sweltering 104 degree temperature and a rain in the evening that marred the band concert. From that time the road with its five passenger trains each way daily, brought passengers and freight to Oneida where connections were made with the C. G. W., and the C. M. St. P. & P. December 1, 1951 witnessed the running of the last train and when the affairs of the road were finally wound up—every bill was paid in full.

The author has captured the spirit of this little road and the men that served it so faithfully for fifty years. He has included plenty of local color and he has been the means of adding another history of our short-line railroads to our list of publications. Your order for a copy should be addressed to the author at 114 West 45th St., Minneapolis (9), Minnesota.

Rails along the Chesapeake, by Anne Tufts. 223 pages, 8x5⅛. Illustrated. Published by Henry Holt & Co., 383 Madison Ave., New York (17), N. Y.

This is a delightful story of a Quincy (Mass.) lad, Brad Warren, who finds a job with the Quincy Granite Mills and becomes interested in the horse drawn Granite R. R. Soon to be apprenticed to one "Si" Crosby, owner of the general store, he flees town and, after many adventures, arrives in Baltimore, helps in the construction of the Baltimore & Ohio R. R. and finally finds his avocation in the construction of the steam engine.

Altho' the story is pure fiction, the author has selected an interesting period in our nation's history—the operation of the Granite R. R. and the day of the trial of the "Tom Thumb." Whether Brad Warren was on the platform of the "Tom Thumb" to help with the belt that had slipped from the blower during the race with the horse is of small moment. So far as this reviewer can note, the author has been extremely careful in the historical facts and setting of this interesting story. There's also another side—it shows what pluck, courage and perseverance will do, despite adversity, traits that could be used by our younger generation today. This reviewer thoroughly enjoyed this story and I believe the majority of our members will also.

Stonington by the Sea, by Henry Robinson Palmer. 95 pages, 9x6. Illustrated. Published by the Palmer Press, Stonington, Connecticut. Price $5.00.

This is a history of the town of Stonington, at one time it was the terminus of the famous Stonington Line and an important rail center. The little town, on Long Island Sound, was settled in 1649, repulsed the British in 1775 and again, in 1814, with only three cannon, drove off four British ships under the command of Captain Hardy. The rail-

road came in 1837 and from that time until 1904, when the old line was abandoned, thanks to the switching engines, the trains and the boats, the nights were far from peaceful.

The author of this book was a resident of Stonington and, for many years was the Editor of the Providence Journal, one of our leading New England newspapers, commuting daily the 49 miles between the two places. While it is true the book will have unusual local interest, the two battles with the British, the onslaught of the two hurricanes, together with the railroad and the local events all make it a very interesting little volume and one that is well worth while.

The Unpublished Opinions of Mr. Justice Brandeis, by Alexander M. Bickel. 278 pages, 9¼x6. Illustrated. Published by Harvard University Press, Cambridge (38), Mass. Price $6.00.

Louis D. Brandeis will always be associated to those that are interested in railroad history, as the only one in New England that not only saw but predicted the outcome of the financial workings of the New Haven R. R. at the turn of this century. Despite assurances by financial editors and writers, statesmen and governors that everything was proper and legal, Brandeis differed and all lived to see him vindicated. The New Haven, which was, and should have been one of the wealthiest railroads in the country has never completely recovered from this gross mis-management.

Now this book makes no mention of this railroad struggle. Rather it covers the period of his life between 1916 and 1939, in that ten unpublished opinions were selected by the author from the material in the Harvard Law School, to illustrate the human qualities and the thinking of Brandeis. His opinions, both published and unpublished, especially those in dissent, often serve as a pivot for the start of a social program. Brandeis was not popular with some of the justices but, his ability as a technical lawyer was respected. To this reviewer, it seems to me that this book serves a double purpose—it serves to show the Justices at work and, in so doing it should enlighten the public and add to the Court's prestige and it also serves to show the workings of a mind that helped shape the social and economic thought of our nation.

Jay Gould, His Business Career, 1867-1892, by Julius Grodinsky. 627 pages, 9x6. Illustrated with maps. Published by University of Pennsylvania Press, Philadelphia, Pa. Price $10.00.

As the title indicates, the author has devoted his researches to the business career of Jay Gould from 1867, when he appeared with the Erie Ry., to the time of his death in 1892. To the majority, this man has always been identified with the Erie Ry. at the close of the Civil War, his attempt to corner the gold market during the Grant administration and his favorite road always was the Missouri Pacific. But Gould foraged further than these roads. After leaving the Erie, he took control of the Union Pacific; then he acquired the Wabash; the Hannibal & St. Joseph; several railroads in the southwest; the Western Union; the Manhattan Elevated all fell under his domination and, control of several of these railroads were bound to affect others in that era prior to I. C. C. and state regulation. However, let it be recorded, at the time of his death, only the Western Union and Manhattan Elevated companies

were paying dividends since they practically had monopolies in their respective fields.

The author has gone to great lengths to detail his method of operation and stock market manipulation. Contracts and agreements were only to be lived up to so long as they served their purpose—Gould. Judges were bought so as to render favorable decisions to—Gould. Shareholders and bondholders were exploited for—Gould. Railroads were for exploitation purposes for the same reason—the Wabash under his control suffered in the division of rates in order that the "favorite" —the Missouri Pacific might prosper. Freight and passenger rates were cut to ruinously low figures to the jeopardy of all concerned. No railroad under his control ever prospered—when Gould finished with them they had to be rehabilitated. Only one man was able to put him in his proper place—J. P. Morgan.

I suppose every author feels that there must be some good in the subject of his work and this author claims that Gould's greatest use was in the reduction of freight rates for the benefft of the public. This reviewer takes rather a dim view of this point. Altho' there were pools formed by certain groups of railroads to maintain the rate level, we must also remember that as the country grew and produced more tonnage, the railroads found it could be handled at a lower rate and, such roads outside of these pools did not hesitate to "experiment." In the eighties, state regulation was commencing to be felt and the I. C. C. became operative in 1887. It was during the last of this decade, that Gould, in desperate straits on his own roads, appealed to the managers of others for help in the formation of an association to uphold the rate situation. By this time no one had any confidence or trust in him and Gould saw his idea go to some one else. Jay Gould was not the type of a man to arouse one's admiration.

Altho' this reviewer realizes the task of co-ordinating the many and varied activities of this man and to keep the story moving steadily forward, it seemed to him that the author in some instances attacked his subject in a circular manner. I assume that this was to recall certain facts in a previous chapter to freshen them in the mind of the reader but. only a few pages separate these chapters and a reference could easily have been given.

The chief complaint this reviewer has is the adoption of certain soubriquets of his own for the railroads whose corporate titles embrace several words. Thus, the Missouri, Kansas & Texas, always known as "The Katy" goes under the name of Kansas & Texas; the Denver & Rio Grande hails under the name of Denver and the Burlington & Missouri River in Nebraska under the initials B & M to the confusion of our own Boston & Maine. Some reader in the future will use these soubriquets as the proper name for one of these railroads and then the trouble will commence. Initials for railroads, like those for people, are to be used to indicate the proper party. Had the author submitted his manuscript to some one that was railroad minded, I don't believe this would have happened but, the author deserves our commendation and gratitude for making more information available about this individual than has yet been published.

Engineering in History, by Richard Shelton Kirby, Sidney Withington, Arthur Burr Darling and Frederick Gridley Kilgour. 530 pages, 9x6. Illustrated. Published by McGraw-Hill Book Co., Inc., New York, N. Y. Price $8.50.

The authors of this book have traced the history of engineering from 6000 B. C. to the present (1956), and have shown how it affected our mode of life. Science and engineering do affect our means of livelihood and the authors have made this quite clear in their work. Civil, electrical and mechanical (power and transportation) are considered and technical terms have either been omitted or else reduced to simple language.

There is a great deal of historical information in this book. Altho' the Romans used the horse for riding purposes, it took mankind ten centuries to develop the horse collar as well as shoes to enable him to pull a load. Many of the every-day things that we take for granted took time to develop. The book not only sustains the interest of the reader but it will ever be valuable for reference. Bibliographical material is listed at the close of each chapter and at the end of the book. The book is "A pictorial account of the development of engineering in Western civilization from its origins down to our twentieth century . . . with interesting highlights on its contributions to human society." The authors have done a fine piece of research.

Locomotives of the Jersey Central, by Warren B. Crater and Arthur E. Owen, Jr. 84 pages, 8½x11. Illustrated. Copies may be obtained from Warren B. Crater, 270 West Colfax Ave., Roselle Park, N. J. Price $2.50.

The Central R. R. of New Jersey had its inception in the Elizabethtown & Somerville R. R., which commenced operations with steam locomotives in 1839. By new construction, lease or purchase of other properties, the "Jersey Central" expanded to its present size and its locomotive roster expanded proportionately. Compared with some, the "Jersey Central" is a small property but to follow through all the different changes as well as the renumberings of these locomotives has not been an easy task. The authors have done a creditable piece of work in this respect and the information is all inclusive. There is enough material relative to the history of the road as well as to these locomotives to keep the roster from being too dull and the roster itself is all-inclusive.

This reviewer has only one complaint. The offset method of printing has been used and the data extends across both pages. To follow a line from left to right can cause the reader to follow another line and, it would have been nice if the authors had seen fit to repeat the locomotive number on the right hand pages to prevent this possible error. However, this is only a small matter and does not detract from the value of the book. To those that are interested in this railroad and its locomotives, this book will be invaluable.

Songs of the Railroad—a twelve inch LP album published by Cabot Music Corp., 116 Central Park West, New York, N. Y.

To those of us that enjoy good music, especially when it relates to the early railroad songs, this record is of unusual interest. These folksongs range from between 1870 to 1910 and include such numbers as

"Drill, Ye Tarriers, Drill," "Wreck of the Old 97," "Big Rock Candy Mountains," "Casey Jones" and a dozen others. The soloists are fine and the background music of flanged wheels, whistles, bells and the thump of the heavy spike maul are unusually good. The album cover closely resembles one of those handsome P-4 Pacifics of the Southern Ry. and was painted by our member—"Betty" Tone.

This reviewer is not an expert in musical matters but this record has been loaned to his friends and neighbors for their reaction and it has not failed to arouse favorable comment on their part. I have a feeling that most of our members would enjoy it and you can obtain it through your local music store—Cabot—Songs of the Railroad, "Merrill Jay Singers" CAB-503.

United States Railroad Postmarks 1837 to 1861, by C. W. Remele. 170 pages, 10x7. Illustrated. Published by the U. S. 1851-60, Unit No. 11 of the American Philatelic Society. Distributed by W. W. Hicks, 842 Lancaster Ave., Villanova, Pa. Price $7.50.

A highly interesting facet of the study of railway history is the investigation of the growth and development of our present railway systems through their function as postal routes of the nation. Starting in 1837, when mails were first carried on trains, until the present time the growth; consolidation and alteration of our railway systems can be traced through a study of cancellations applied on envelopes postmarked by postal clerks or route agents on duty on mail cars carried in passenger trains.

A valuable contribution to the history of railway mail service and railways in the 1837-1861 period is offered in this comprehensive study by the late C. W. Remele based on railway cancelled envelopes or 'covers' from his extensive collection and on examination of material from the collections of many leading philatelists specializing in railway mail history.

The presentation of this research features for nearly all railroads transporting mail during this early period tracings of postmarks or cancellations applied to mail, a listing of cancellations with period of use and pertinent data, a listing of postal routes in operation on each railroad and a discussion of mail service provided together with information on the relative scarcity of the markings. For each railroad there is also included a brief historical sketch of development during the period together with a listing of stations on each line. Further interest is added by frequent maps of the postal routes on various railroads and illustrations of 'covers' of particular interest.

This book offers the first comprehensive study of these early railroad postal routes and markings and outlines the development of early railway mail service of the United States from a viewpoint combining the interests of the railway historian and the philatelist. Offering the benefits of many years of intensive research it should be of great assistance to and provide a basic for further investigation for all students of early railway and postal history in this country.

The edition of this book is limited to 500 copies and is beautifully bound and printed. It will make a valuable reference volume for the library of anyone interested in railway or postal history.

CHARLES TOWLE

Robert C. Schmid

Robert was born in Indianapolis, Indiana, July 26, 1884. He attended Purdue University and graduated with the Class of 1908 with the degree of Mechanical Engineer.

Upon graduation he became a draftsman in the Fort Wayne Shops of the Pennsylvania Lines (P. Ft. W. & C. Ry.) and, on January 13, 1913, he started service with the New York Central Lines ("Big Four") at their Beech Grove Shops at Indianapolis. He served in various capacities, Draftsman, Power Plant Engineer and Chief Draftsman. It was about 1936 that he was transferred to the office of Equipment Engineering of the N. Y. C. in New York City as Travelling Inspector and later he became Chief Draftsman, the position he held at the time of his retirement on December 31, 1951.

To those of us that knew Robert, his passing is a great loss. He was a Director of this Society since 1940, he was our Resident Vice President (New York) at the time of his death having succeeded the late William T. Gaynor and for many years was Chairman of our New York Chapter. He was faithful in coming to our Annual Meetings where everyone enjoyed his company and with whom he was willing to share his knowledge and experience. He passed away on August 27, 1957.

Robert C. Schmid was one of the few photographers of locomotives at the turn of the century—he must have commenced this work around 1908 or 1909 and he was one of a group made up of Karl E. Schlachter, O. H. Means, J. H. Westbay and others. His photography was unusually good but the information and the details that he furnished about the subject in question left nothing to be desired. If he had the information, he furnished it with the print. He was of great assistance to your Editor in the material for the Pennsylvania Lines West locomotives in our Bulletin No. 91 and this knowledge together with his willingness to help will be sorely missed in the years to come.

In Memory of

FRANCIS A. COLE
Annual Member
419 Cottage Ave., Glen Ellyn, Illinois
Who Died on September 20, 1957

ARTHUR M. CROUSE
Annual Member
Box 326, Warren, Pennsylvania
Who Died on January 22, 1956

FRED I. DOBSON
Annual Member
3731 Montgomery Ave., Detroit, Michigan
Who Died in March, 1957

RODGER D. GESSFORD
Annual Member
8054 Glendale Road, Chevy Chase, Maryland
Who Died on October 26, 1957

A. A. GILMORE
Annual Member
North Easton, Massachusetts
Who Died on August 15, 1957

ERLE HEATH
Annual Member
Public Relations Department
Southern Pacific Co., San Francisco, California
Who Died on November 8, 1957

ALFRED R. JAMES
Annual Member
The Greenway, Baltimore, Maryland
Who Died on August 15, 1957

THOMAS P. KELLY
Annual Member
1320 Arch St., Philadelphia, Pennsylvania
Who Died on March 27, 1957

G. F. STARBUCK
Annual Member
141 Weston St., Waltham, Massachusetts
Who Died on September 25, 1957

W. H. STEVENS
Annual Member
Box 1427, Richmond, California
Who Died in December, 1957

JAMES W. WITHROW
Annual Member
20069 Black Road, Los Gatos, California
Who Died in October, 1957